

CHAPTER

00

HELICOPTER - GENERAL

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SECTION 00

HELICOPTER - GENERAL

GENERAL DESCRIPTION

NOTE

AW139 and AB139 are two names for the same products. AB139 up to s/n 31054.

AW139 from s/n 31055 onward.

The AW139 is a twin engine, rotary wing aircraft designed for the following primary roles:

- transport of passengers (including VIP and Corporate)
- transport of material
- ambulance (EMS)

and be adaptable to the following secondary roles:

- air taxi
- transport of underslung loads
- search and rescue (land, sea, mountain)
- off-shore
- fire-fighting
- ecologic, radiologic, surveillance
- civil protection
- law enforcement

and to paramilitary roles.

The various roles will be performed by the basic aircraft by adding to it the equipment required for each role.

The AW139 type is certificated under Category A and B of JAR/FAR 29 Airworthiness Standards.

The AW139 is also type certificated under:

- the Instrument Flight Rules (IFR) defined in: Appendix B to JAR 29 equal to FAR 29 CAT A.
- the icing conditions defined in: Appendix C to JAR/FAR 29.

Both certifications will require installation of appropriate packages kit to the basic aircraft configuration.

Certification shall cover also:

- Taxiing from prepared surfaces
- Cat. 1 or 2 ILS approaches
- Overwater operations (no amphibian operations)
- Carriage of external loads
- Cold weather operations
- Hot and high operations.

STRUCTURE

The cockpit, the front part of the fuselage, include the pilot (RH) and co-pilot or passenger (LH) side-by-side seating positions, adjustable crashworthy seats, the instrument panel and a forward opening hinged door on each side with emergency release.

The middle part of the fuselage is composed by cabin and rear fuselage.

The cabin include the passenger seating area, a sliding door on each side, the fuel tanks housing, the main gearbox and engine attachments, main landing gear attachments and housing.

The rear part of the fuselage includes the baggage bay.

Cabin size is adequate for the following internal arrangements:

- **Normal density civil transport** 2 +11 passengers (all looking forward) in crashworthy seats.
- **Normal density civil transport** 2 + 12 passengers
- **High density civil transport** 2 +15 passengers.
- **Civil EMS** 6 litter patients, 2 non-litter patients and 2 medical attendants.

The tail boom, the final part of the fuselage, shall include the stabilizer, the fin, the intermediate and tail gearbox attachments.

The parts mentioned above are considered primary structure.

The remaining parts of the fuselage, are considered secondary structure and include:

- pilot doors
- passenger doors
- inspection doors
- transparencies

- main gearbox cowlings
- fairings
- radomes.

LANDING GEAR

The landing gear is of nose tricycle, telescopic arm, fully retractable type with separated retracting actuator.

The main landing gear is a single wheel type with hydraulic wheel brakes.

The nose landing gear is a dual wheel, free swivelling type and is fitted with a centering device to ensure the gear is centered before retraction; the capability for pilot to lock/unlock the nose gear in the centered position is provided.

WHEEL BRAKE HYDRAULIC SYSTEM

The wheel brake system uses a separated hydraulic system, operated and controlled by the pilot or copilot.

The wheel brake parking brake is manually "controlled". It is used to brake the helicopter parked for 1 hour on slopes up to 10° at maximum running speed of 40 kts.

POWERPLANT

The power plant shall comprise: engines and related installation, fire detection and extinguishing system.

ENGINES

The helicopter is powered by two PT6C-67C turbine engines. The engines are installed in separated fireproof areas above the cabin roof and supply power to the input gears of the drive system by means of a rotating shaft which transmits pure torque.

The engines are connected to the helicopter airframe by means of two attachment points on the engine body and to the main gearbox by means of a tube and gimbaled joint.

Air is supplied to the engine via individual, side facing air inlets.

The engines are started by a DC electrical starting system and are fed by the fuel system.

Engine control is achieved via a control panel located in the cockpit and manual back-up of the engine control via push-pull cables.

The engines are provided with torque sensing and matching and with automatic power increase of one engine in case of failure of the other engine.

FIRE DETECTION / EXTINGUISHING

The fire detection system operates on 28 VDC and consists of a continuous wire detector installed in the power plant fire zones, routed in a way that allows coverage of all critical areas such as ventilation outlets, combustor/tailpipe sections, fuel supply, control regions, etc.

The fire suppression system, required for the two main engine bays, consists of directional flow valves which allows discharge of the contents of one bottle while sealing the connection to the other bottle and allows subsequent discharge of the other bottle in the same bay on pilot's command.

DRIVE SYSTEM

The drive system consists of a main gearbox (MGB) and a tail rotor drive system.

MGB

The main gearbox is mounted on the main cabin by means of four struts and an anti-torque device, and driven by two PT6C-67C engines.

The main gearbox has three stages of reduction.

The main gearbox includes its own autonomous, duplicated oil lubrication system.

It also provides the attachment points for a hydraulically actuated rotor brake, coaxial with the tail rotor drive output.

The main gearbox drives three hydraulic pumps, a spare for two AC generators, a fan for main gearbox oil cooling and a spare for the air conditioning compressor.

T.R DRIVE

The tail rotor drive system consists of three drive shafts driven by the main gearbox, an intermediate gearbox and a tail gearbox.

Both gearboxes have four isolated attachment points and are oil splash lubricated.

ROTORS

The rotor system consists a main rotor (MR) and tail rotor (TR).

MR

The main rotor is a five bladed, fully articulated rotor composed of following major components:

- main rotor head.
- rotating controls.
- blades.

The main rotor head consists of a hub, elastomeric bearings, tension links, hydraulic type dampers, droop stops, pitch change levers and blade connection bolts.

Control is obtained by means of a rotating and stationary swashplate separated by grease lubricated ball bearings.

The stationary swashplate is connected to the main rotor servos, while the rotating swashplate is connected to each blade by means of an adjustable pitch link, and to the rotor head by means of two scissor links.

The basic, non de-iced blade is a complete composite structure with a fiberglass epoxy spar. A parabolic tip is provided.

The leading edge is protected by stainless steel erosion shield.

The blade is protected against lightning damage by an appropriate lightning conductor strip connected from the tip to the root of the blade.

When de-icing is installed, an electrical heater mat shall be provided under erosion shield.

TR

The tail rotor is a four blade articulated rotor.

The blades are of composite material construction, with leading edge protected by a metallic strip.

The hub is titanium with elastomeric bearings providing the capability of pitch, flap and drag blade motions; an elastomeric damper for each blade is provided.

When de-icing is installed, an electrical heater mat shall be provided under the anti abrasive strip.

The rotating controls are internal to the mast and consist of a control rod connected on one side to the yaw servo and on the other to a four arm pitch change lever, which in turn is connected to the blades by four pitch links.

FIXED FLYING CONTROL SYSTEM

The fixed flying control system is part of the system used to control the helicopter flight.

The fixed flying control system includes four channels to control the flight: longitudinal cyclic, lateral cyclic, yaw, collective.

The control system is basically a single system operated by a pilot (with dual copilot controls as an option) in a side-by-side cockpit.

The fixed flying control system includes all the elements (levers, rods, supports, etc.) from the pilot input (i.e. cyclic and collective sticks and pedals) up to the main gear box servo-actuators and up to the tail rotor servo actuator.

The fixed flight control system includes:

- The series actuators of the autopilot for the three channels (longitudinal and lateral cyclic, yaw).
- The parallel actuators used to guarantee the artificial sensibility and full operation of the autopilot. A fourth series actuators shall be foreseen for the optional fourth channel (collective).

FUEL SYSTEM

The fuel system is composed of rubber fuel tanks, filler cap, fuel selector manifold, boost pumps, fuel quantity gauging system, drain valves, pressure switches, non-return valves, fuel venting system and fuel lines.

The fuel tanks are located in the rear area of the cabin (behind the passengers cabin) and each contains a boost pump, engine feed line, fuel and water drain valve to supply one engine.

Filling is achieved by gravity only through the filler cap on the RH SIDE of A/C.

The fuel selector manifold allows fuel supply to each engine, engine integrated shut-off and engine cross-feed.

The fuel quantity gauging system is composed of four capacity probes, fuel computer unit and a fuel low level sensor for each tank.

The fuel venting system consists of pipes of appropriate diameter for each tank and are designed to prevent leakage in case of roll-over after crash landing.

HYDRAULIC SYSTEM

The hydraulic system is divided into the Flight Control and Landing Gear Hydraulic Systems.

The hydraulic system comprises two separated independent and redundant circuits (Circuit 1 and Circuit 2) each supplied by hydraulic pumps.

Each of the two circuits is capable of providing the power to the flight controls servo actuators separately.

The hydraulic power for Circuit 1 is provided by the Pump 1 (Hydraulic Pump) and by the EP (Electrical Pump).

The electrical pump is only able to satisfy the flow requirements of the F/C during the pre-flight check.

The hydraulic power for Circuit 2 is provided by the Pump 2 and by the Pump 4.

On each circuit is installed a PCM (Power Control Module) which receives the Hydraulic oil flow from the Hydraulic Power Supply and distributes it to the Flight Controls actuators and to the Landing Gear circuit.

On Circuit 2, on the pressure line going to the Tail Rotor Actuator, an isolation valve TRSOV (Tail Rotor Shut-off Valve) is also provided.

For ground test and emergency condition, a Flight Controls circuit shut-off valve is integrated in each PCM to allow: shut-off the flight controls circuit, check the functioning of the Flight Controls actuators section and isolate the Flight Controls actuators in case of circuit overtemperature, increasing the survivability of the other section of the Flight Controls actuators.

For safety reasons, another shut-off valve is installed in each PCM to allow to shut-off the utility circuits, increasing the survivability of the Flight Control functions.

Hydraulic power to the Landing Gear actuators is furnished by the PCMs to extend and retract the main and nose landing gear.

The normal function (extension and retraction) is supplied by PCM 2, while the emergency function (down emergency) is supplied by PCM 1.

The Main and Nose Landing Gear are maintained in UP position by the hydraulic pressure (no mechanical uplocks are provided).

The extended DOWN position is maintained with the use of mechanical locks in the Main and Nose gear actuators.

ELECTRICAL SYSTEM

D.C. GENERATION (28V)

The DC power is provided by two 30 V 300 A DC air cooled generator.

The power supply is then distributed through two lower distribution panels to the MAIN-ESS-NON ESS buses.

The two batteries (40 Ah and 13 Ah) provides a back-up source of emergency DC power in the event that both generators fail.

The two batteries are also used for starting the engine when the extend power supply is not available: the main battery (40 Ah) provides power to starter generator while the auxiliary (13 Ah) supports the essential bus loads during the start sequence.

The external power can supply power to the A/C buses.

A.C. GENERATING (N.A.)

LIGHTING

The lighting system includes interior and exterior lighting subsystems.

The interior lighting subsystem consists of instruments lighting, panels lighting, overhead panels lighting and cockpit utility lighting.

The exterior lighting subsystem consists of anti collision lights, position lights and landing lights.

NVG compatibility can be provided at customer option.

Emergency lighting system.

COCKPIT AND CABIN VENTILATION SYSTEM

The ventilation system consists of two separate subsystems for cockpit and cabin ventilation. Heating and cooling systems are provided as optional kits.

COCKPIT

The system draws outside air from two intakes in the nose section and provides separate (pilot and co-pilot) ventilation and windshield defogging. Each individual system is fitted with a blower and provides control of ventilation and defogging airflow. It shall be possible to interface the system with the optional heating and cooling systems.

CABIN

The system uses ram air drawn from an inlet duct located on the cabin roof. Air is then routed to the high side of the cabin and cockpit by appropriate ducts.

AVIONICS

The Primus Epic is an integrated avionics system that hosts the subsystems and functions necessary to operate an aircraft. The subsystems are:

- the Automatic Flight Control System (AFCS)
- the Modular Radio System
- the VHF Data Radio (VDR)
- the Airborne Audio System
- the Modular Avionics Unit (MAU) system
- the Central Warning System
- the Electronic Display System (EDS)
- the Air Data System
- the Attitude and Heading Reference System (AHRS)
- the Radio Altimeter System
- the VOR/ILS Data Link (VIDL) system

- the Weather Radar (WXR) system
- the Lighting Sensor System (LSS) (optional)
- the Distance Measuring Equipment (DME) system
- the Air Traffic Control (ATC) Transponder (XPDR) system
- the Automatic Direction Finder (ADF) system
- the Global Positioning System (GPS)
- the Flight Management System (FMS)
- the Central Maintenance System (CMS)

The MAUs, the display units and the MRCs are directly connected to the Avionic Standard Communication Bus-D.

The ASCB-D network lets these units send and receive data at the highest speed possible based on reliability and availability.

The AW139 Primus Epic system is available in two main configurations:

- Single pilot VFR
- Dual pilot IFR

Various options are also available within these configuration. Both configuration use the same display formats, controllers and sensors.

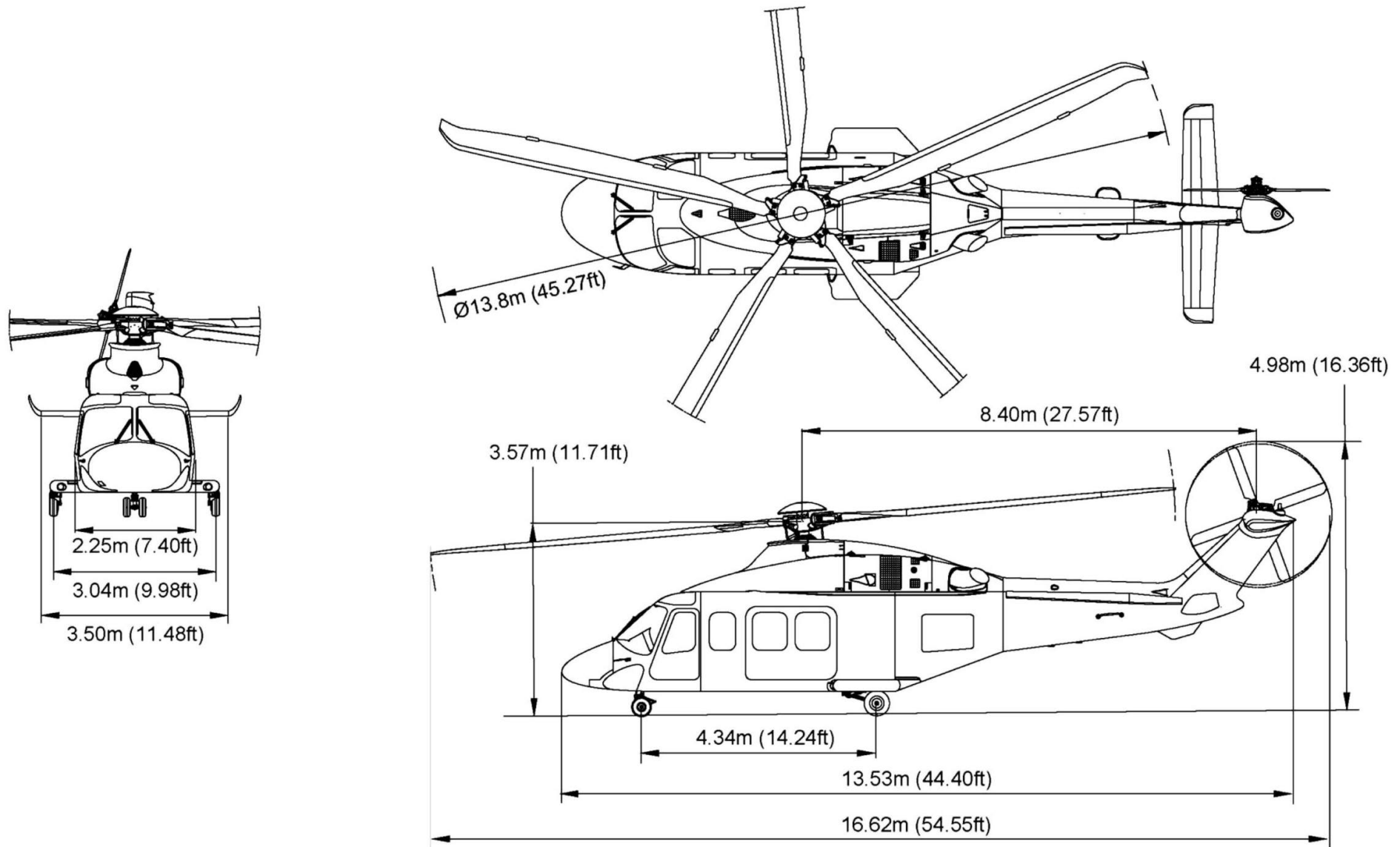
DISPLAY SYSTEM

The Primus Epic provides the flight crew with all the necessary displays for aircraft control and navigation on up to four identical and interchangeable 8"x10" Active Matrix Liquid Crystal Displays (AMLCD).

The display system includes the following components:

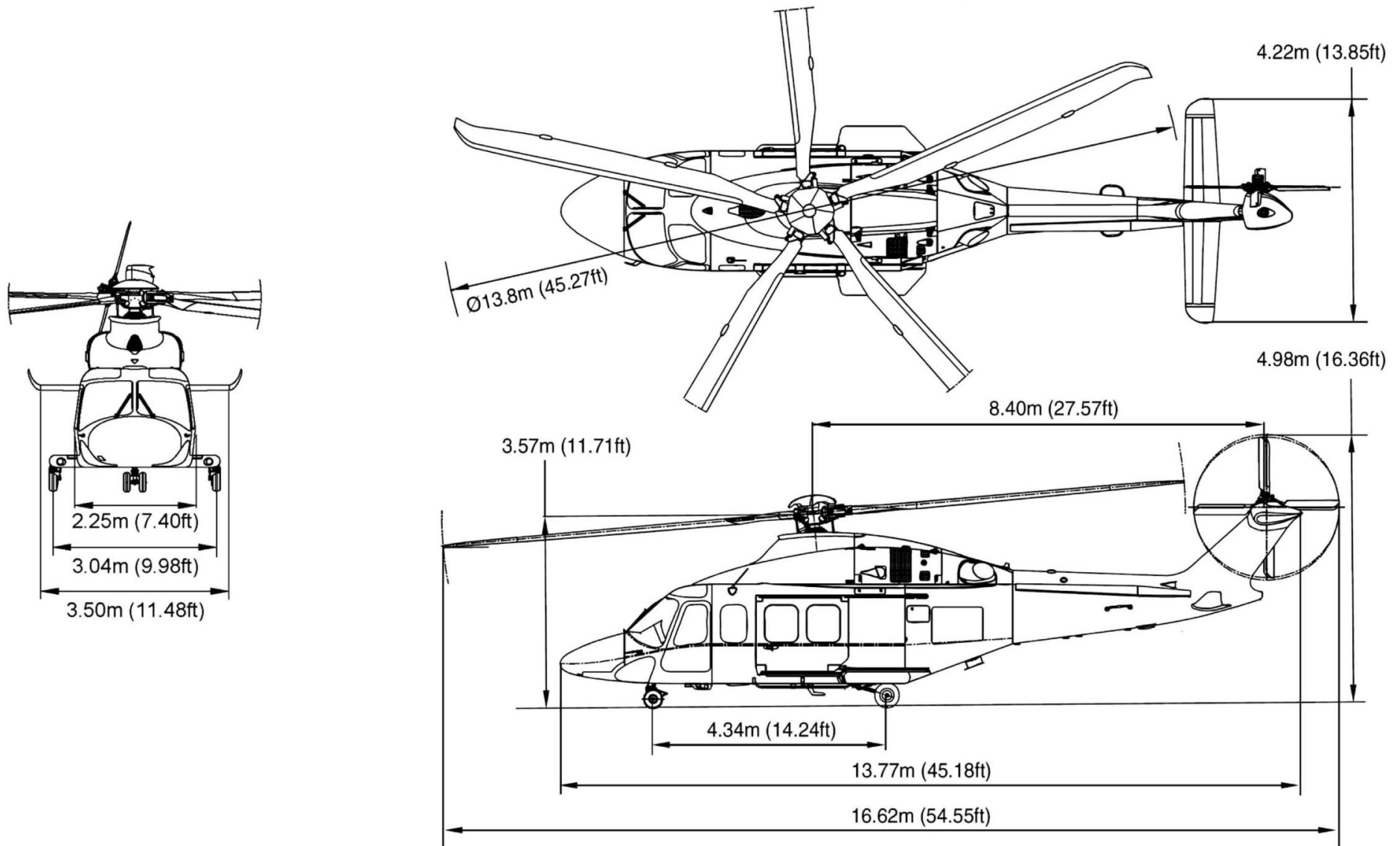
- 1 Flat panel display units
 - One (VFR) or two (IFR) primary flight and navigation displays (PFD) with integrated engine instruments and crew alerting information
 - One multi-function display (MFD) for enhanced display of navigation and weather radar and secondary engine instruments
 - An additional MFD/video display for the SAR configuration (optional).

- 2 Display controllers
 - One (VFR) or two (IFR) PFD controllers
 - One (VFR) or two (IFR) Cursor Control Devices (CCD)
 - Up to two Remote Instrument Controllers, depending on aircraft and video configurationMenu selections from the MFD
 - One Reconfiguration Control Panel (RCP)
 - One Dimming Control Panel
 - AHRS control panel.
- 3 Standby instruments
 - One self-contained attitude indicator
 - One airspeed indicator
 - One altimeter with encoder.
- 4 Master Caution and Master Warning lights are provided at each crew station.



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PRINCIPAL DIMENSIONS (SHORT NOSE VERSION)



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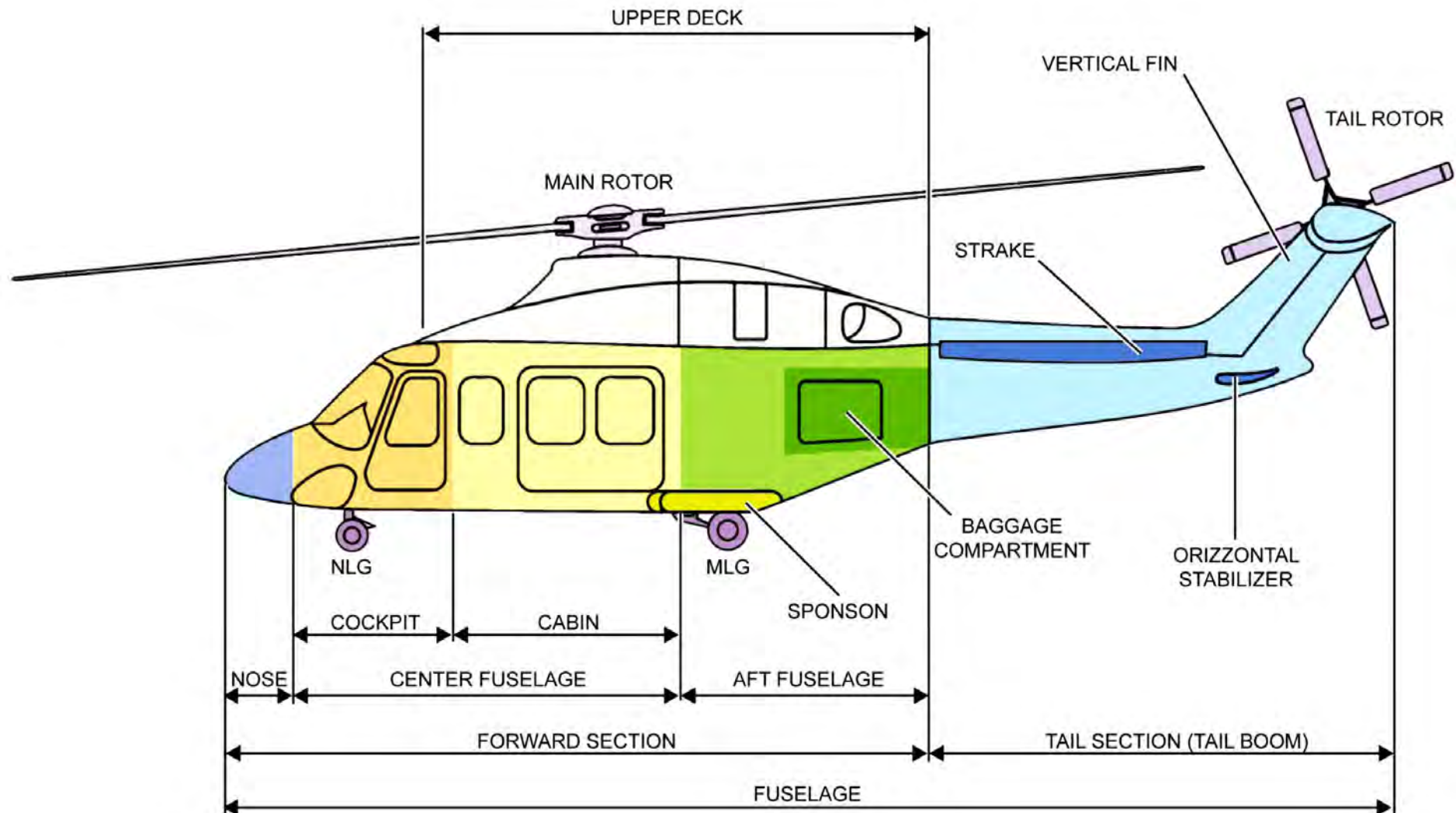
PRINCIPAL DIMENSIONS (LONG NOSE VERSION)

OPERATING PERFORMANCE

- Vne (AEO) – Up to Hd = 6000 ft..... 167 KIAS
- Rate of Climb (@ AEO, MCP, 6400 Kg)..... 2150 fpm
- Service Ceiling (Hp or Hd) 20000 ft
- Hovering Ceiling (IGE & OGE, @ MCP, AEO)..... Up to 18000 ft
- Takeoff & Landing Ceiling (Hp or Hd)..... Up to 14000 ft
- Operating Temperature..... -40°C to ISA + 35°C

WEIGHT LIMITS

- Maximum gross weight for CAT B take-off/landing..... 6400 Kg
- Increased Gross Weight (Kit P/N 4G0000F00111 – see RFM Suppl-50)..... 6800 Kg
- Minimum flight/rotor-turning gross weight..... 4400 Kg



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PRINCIPAL DIMENSION



CABIN SLIDING DOOR

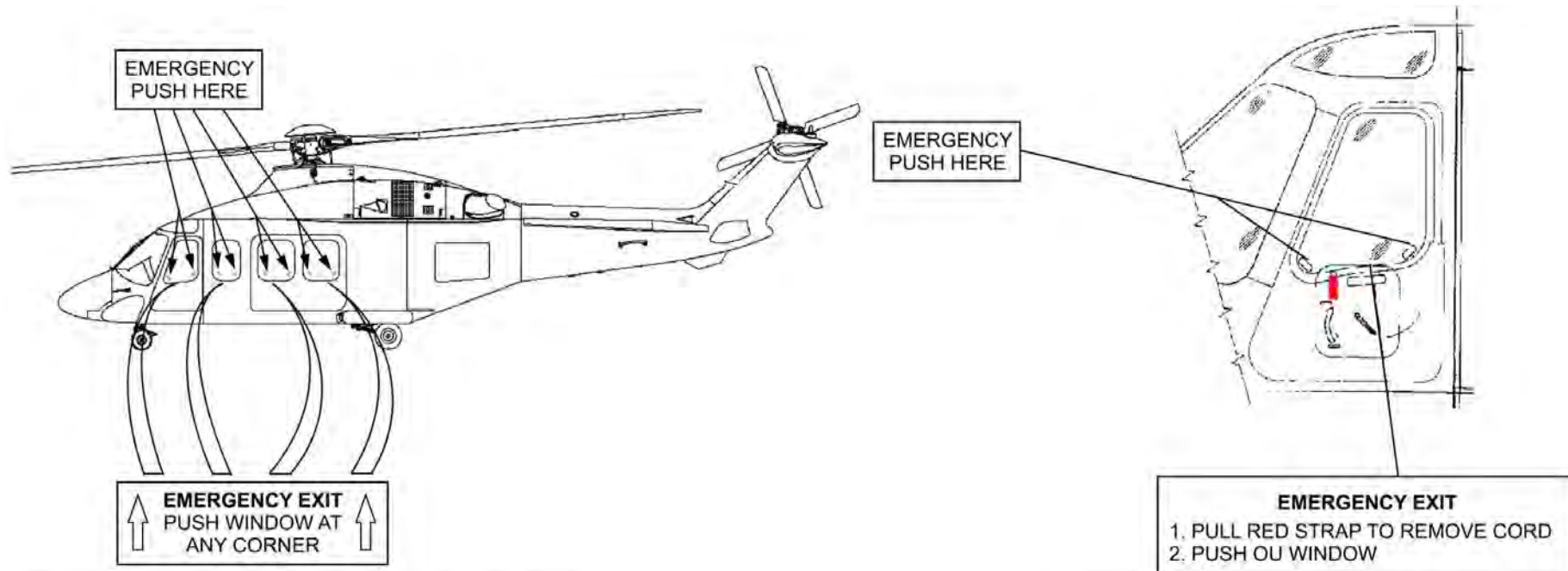


PILOT DOOR

NOTE: Same arrangement on both sides

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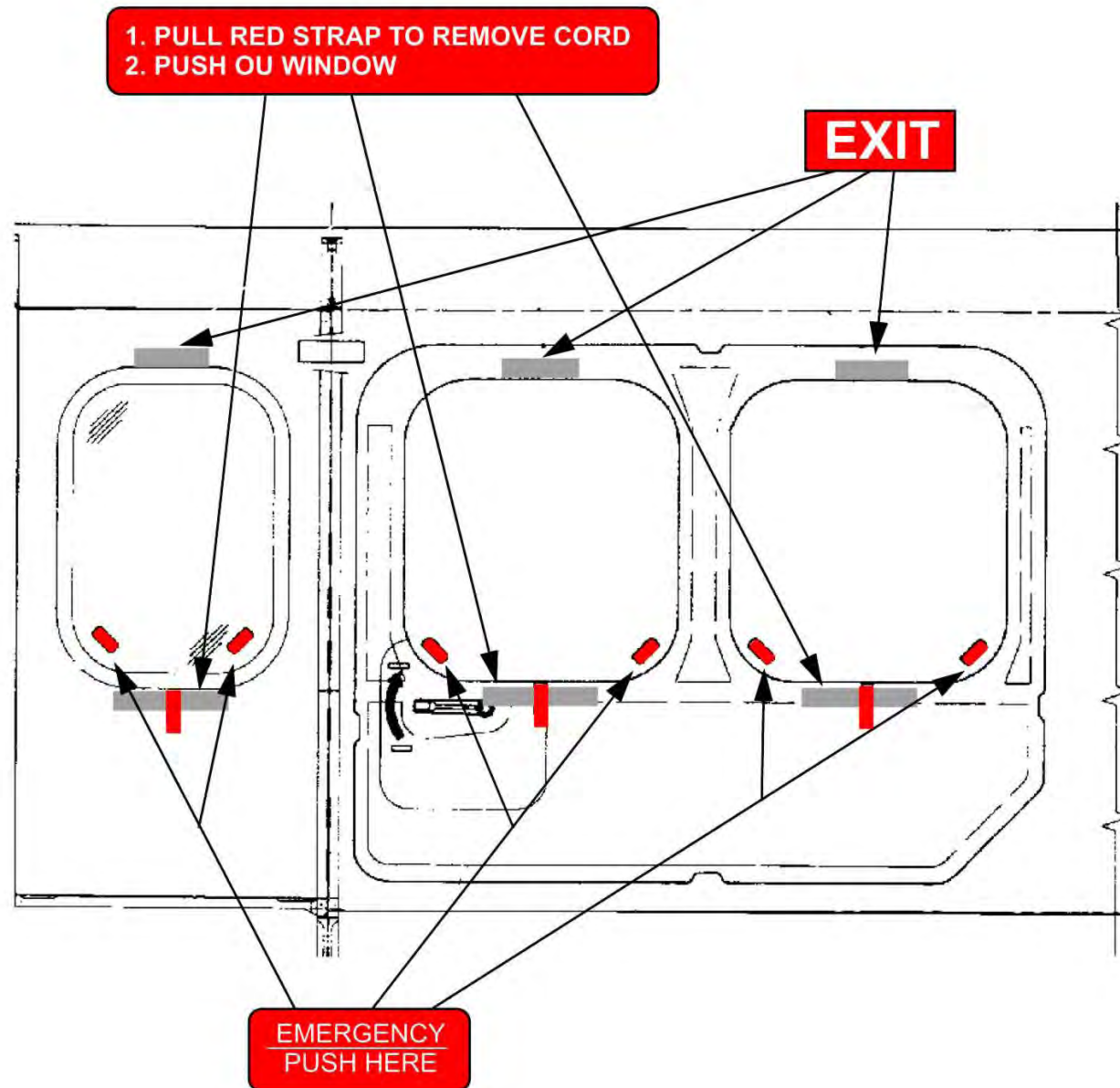
COCKPIT AND CABIN



EXTERNAL MARKINGS AND PLACARDS

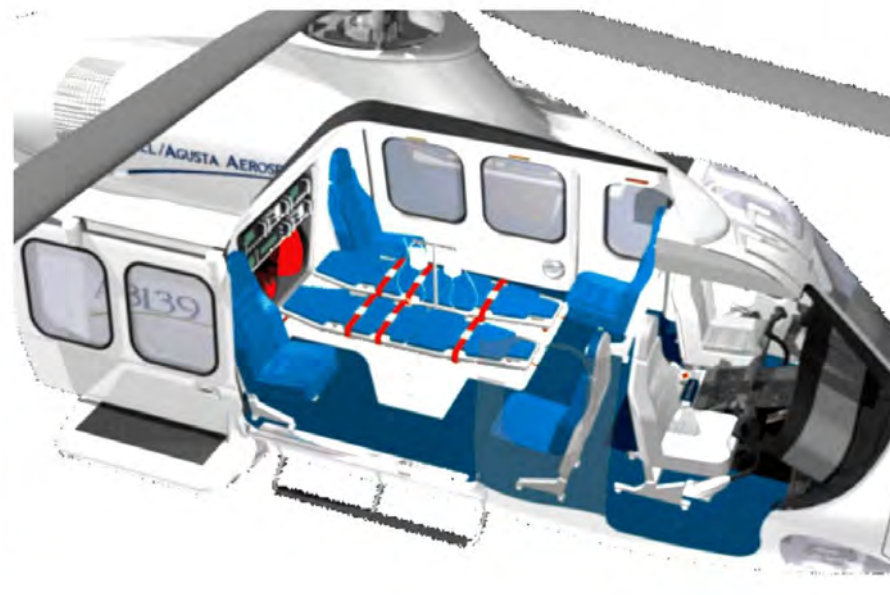
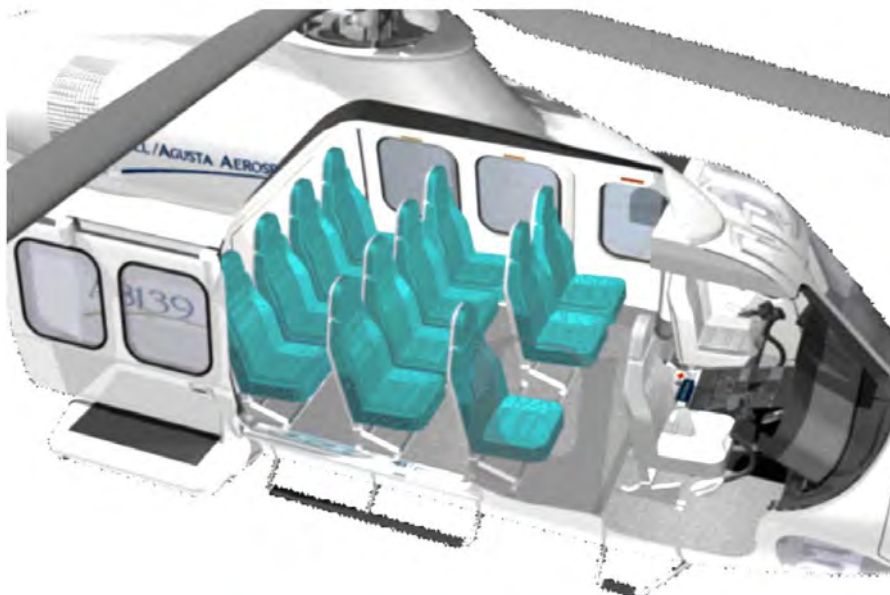
INTERNAL MARKINGS AND PLACARDS

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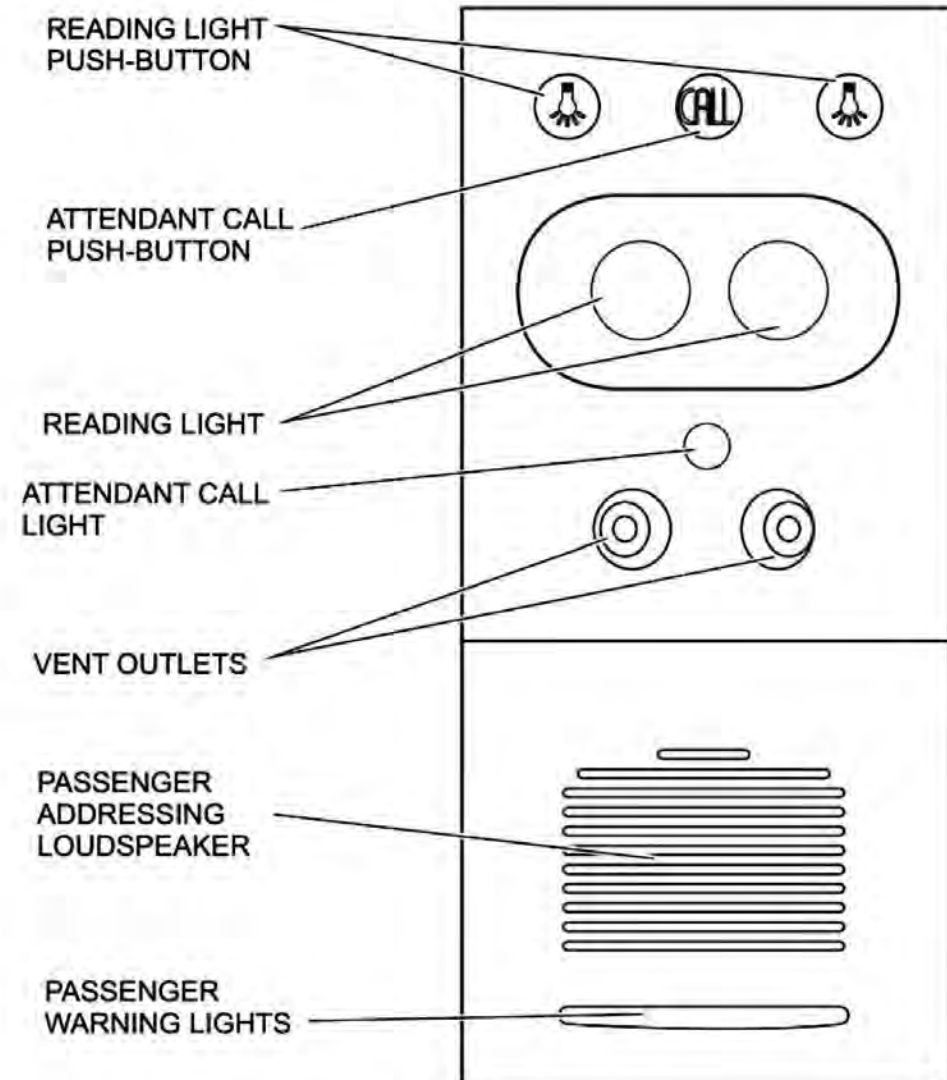
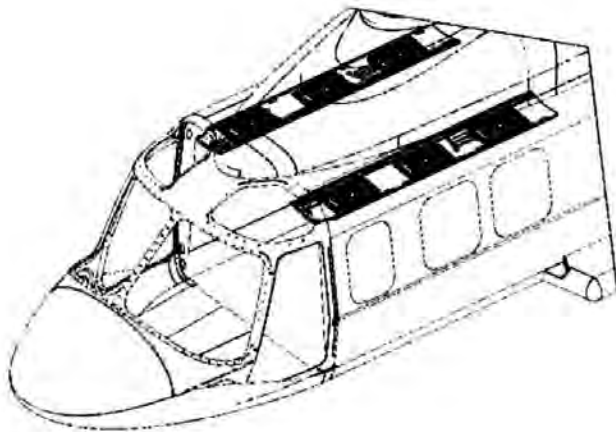
MARKINGS AND PLACARDS (SHEET 2 OF 2)

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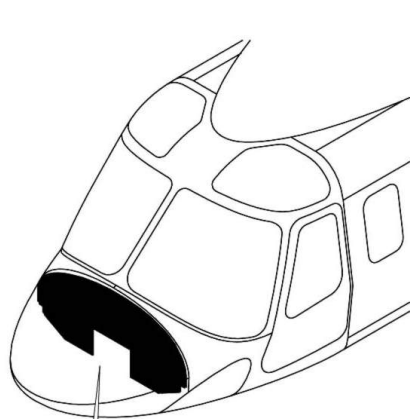
CABIN – CONFIGURATIONS

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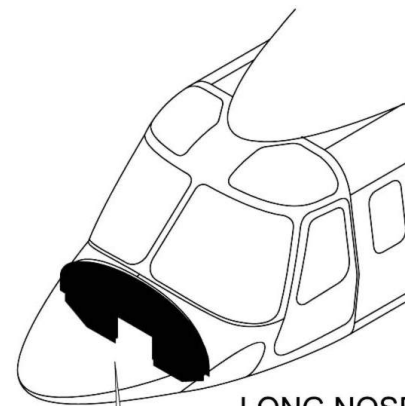


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PASSENGER SERVICE UNIT (PSU)



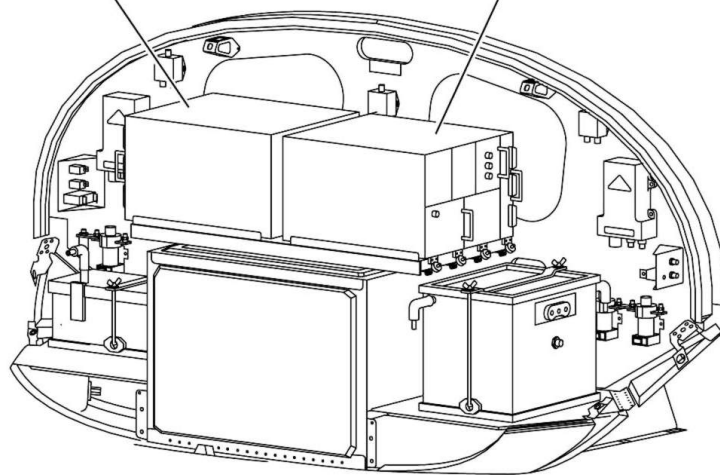
STANDARD NOSE HELICOPTER



LONG NOSE HELICOPTER

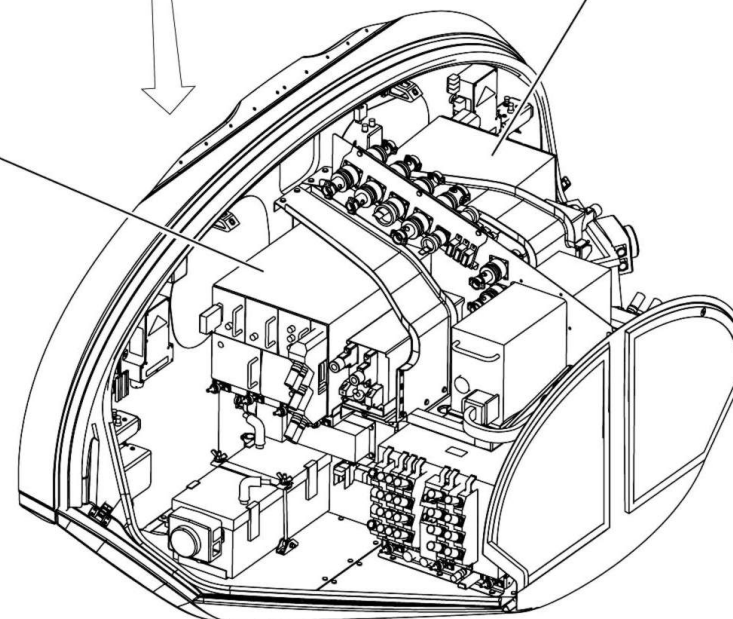
MRC 2

MRC 1



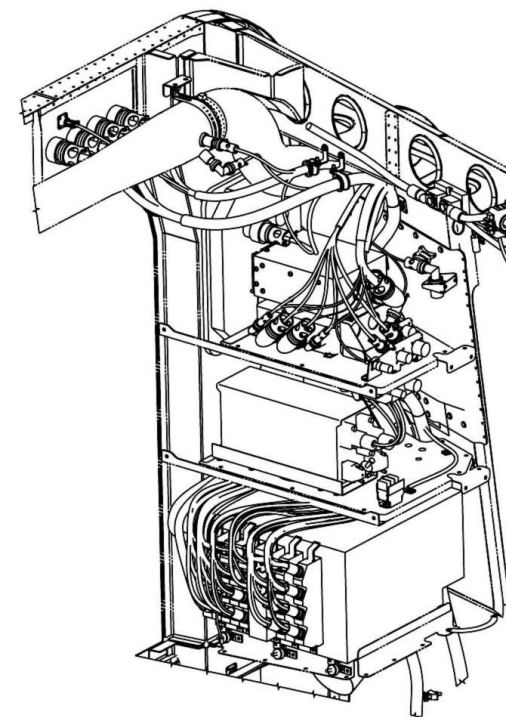
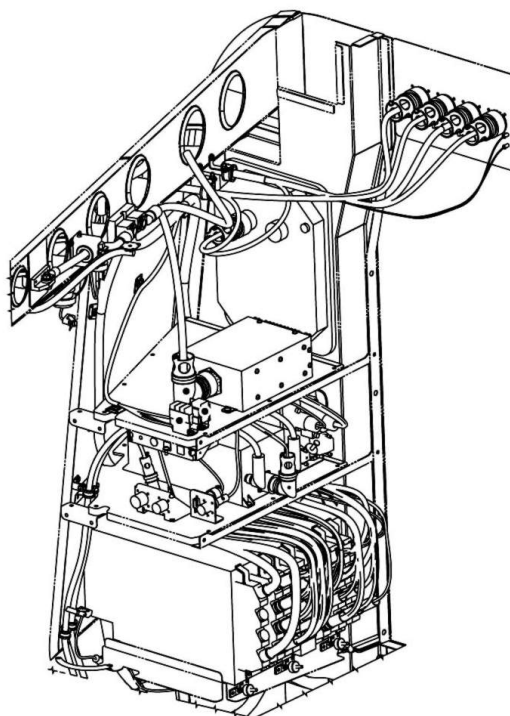
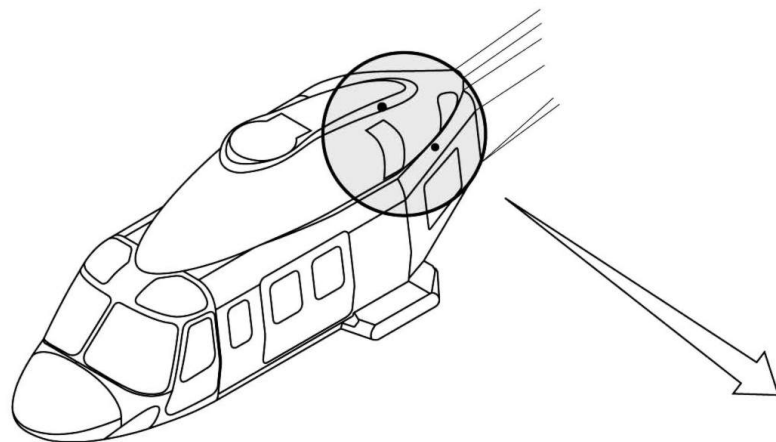
MRC 2

MRC 1



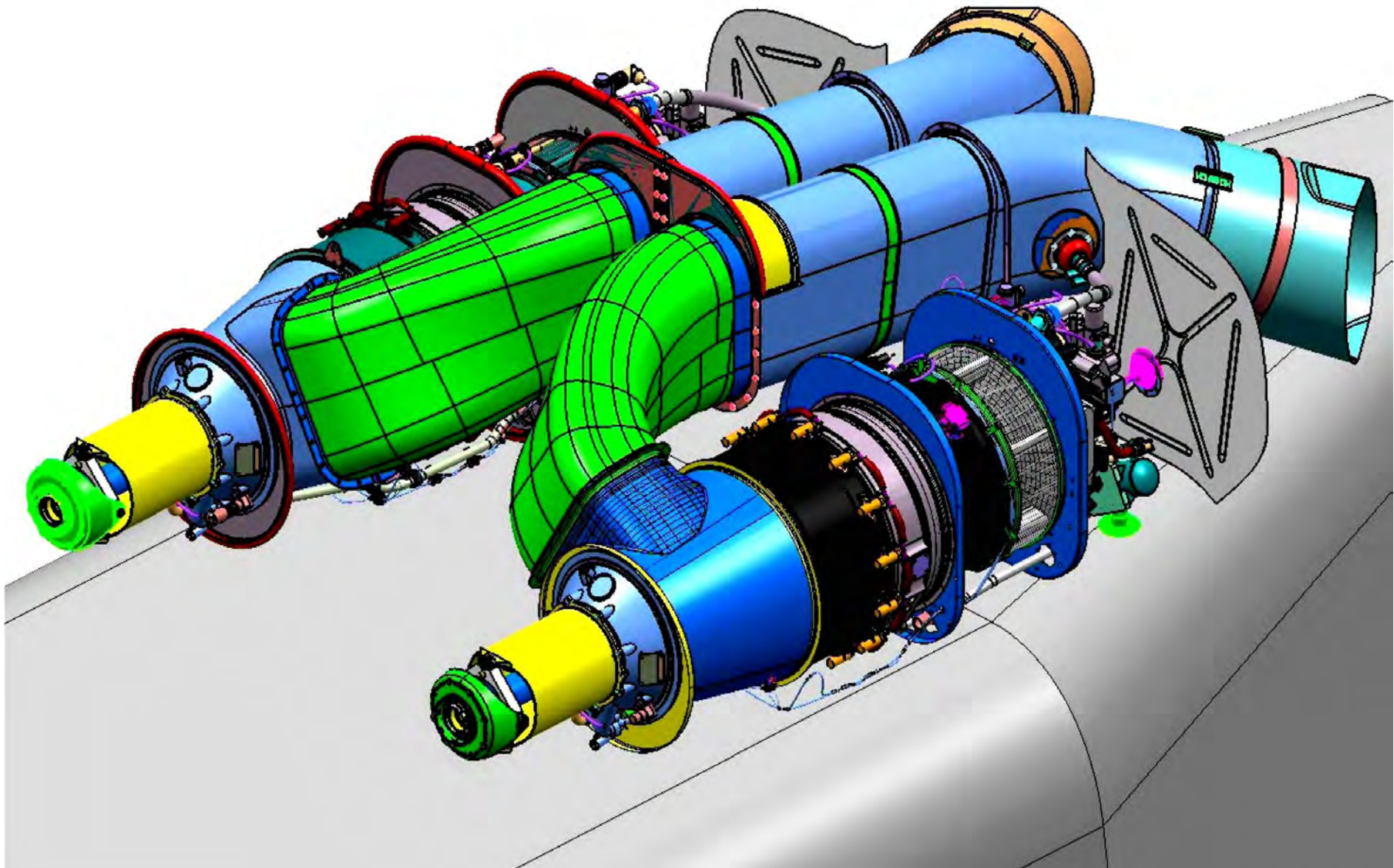
ELECTRONIC/AVIONIC BAYS – NOSE

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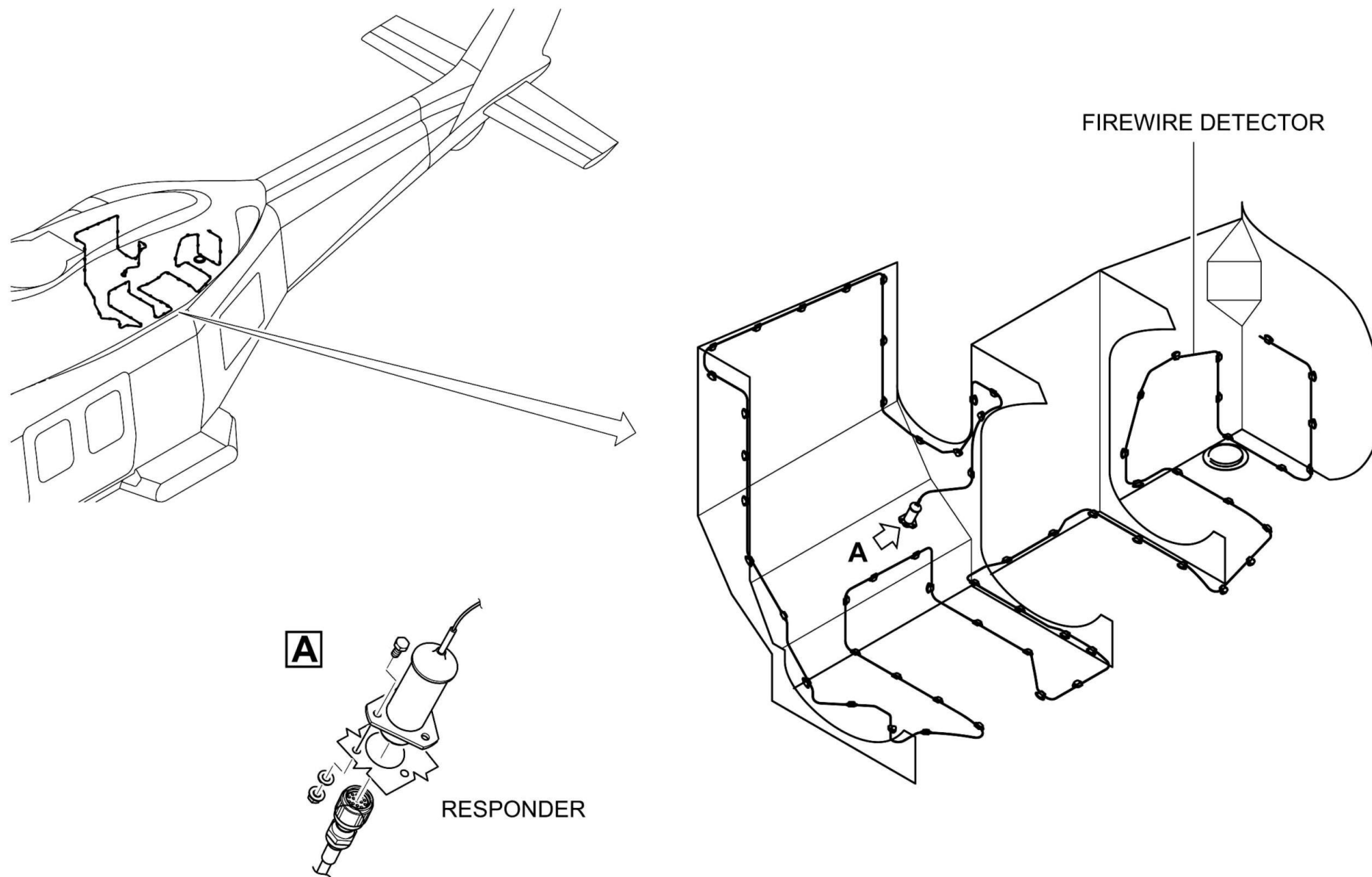
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ELECTRONIC/AVIONIC RACKS



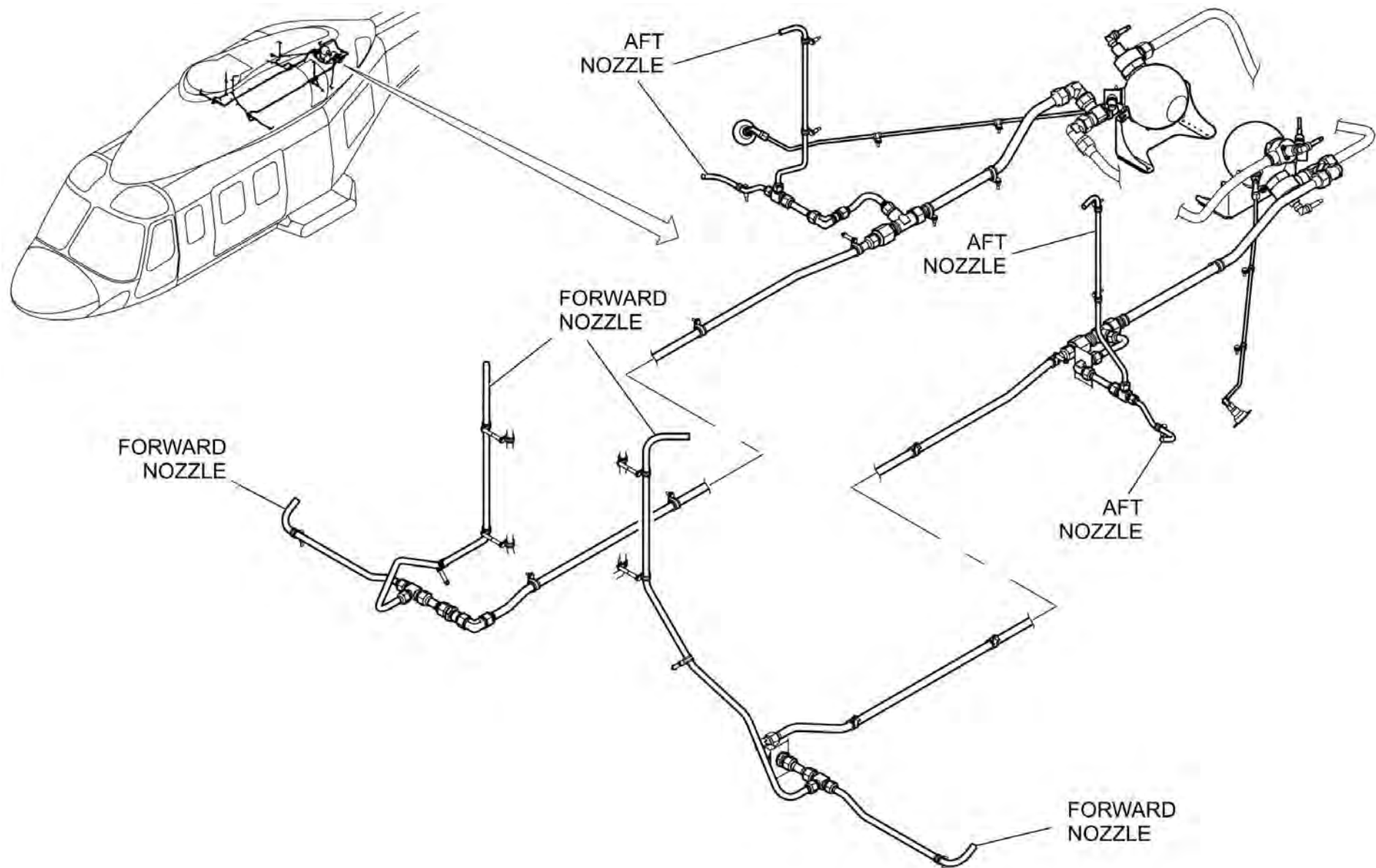
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POWER PLANT



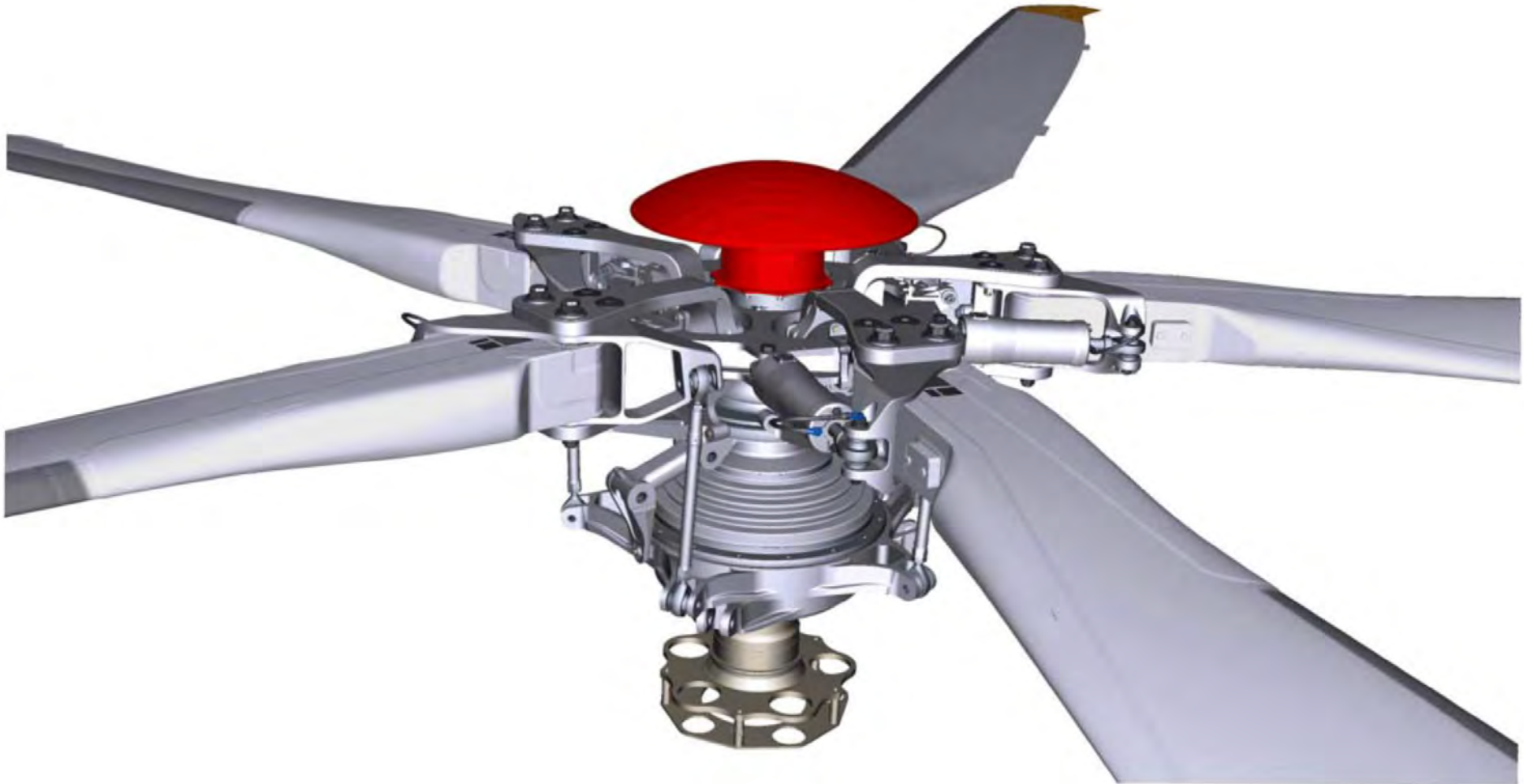
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FIRE DETECTION SYSTEM



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ENGINE FIRE EXTINGUISHING SYSTEM



ICN-39-A-000000-G-A0126-00410-A-01-1

MAIN ROTOR



ICN-39-A-000000-G-A0126-00411-A-01-1

MAIN ROTOR DRIVE SYSTEM



TAIL ROTOR

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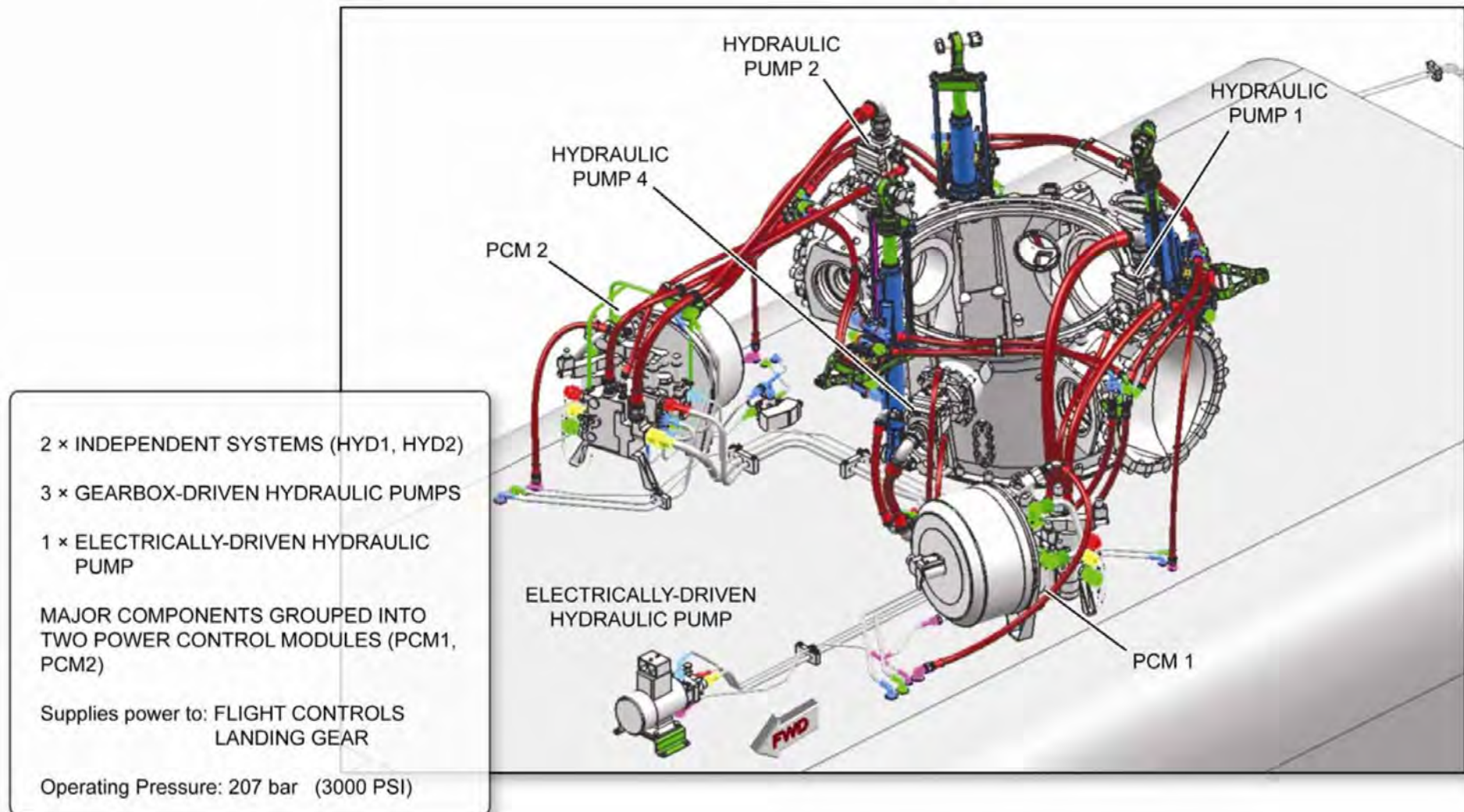
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TAIL ROTOR DRIVE SYSTEM



FLIGHT CONTROL SYSTEM

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ICN-39-A-000000-G-A0126-00415-A-01-1

HYDRAULIC POWER SYSTEM

FULLY RETRACTABLE
NOSE TRICYCLE
LANDING GEAR



NOSE LANDING GEAR (NLG)

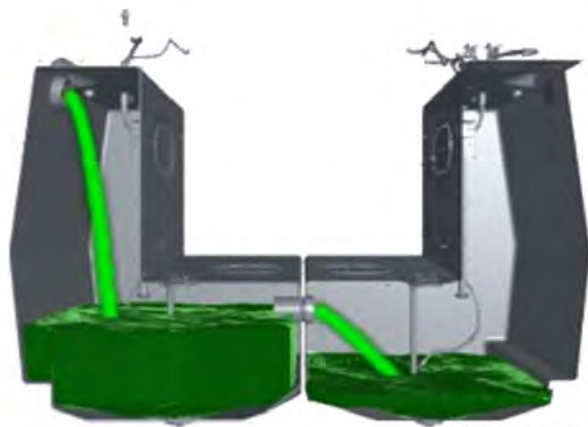
Twin wheel
able to free swivel 360° and
equipped with centerlock device

MAIN LANDING GEAR (MLG)

Single wheel
equipped with WHEEL BRAKES

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LANDING GEAR



View looking aft

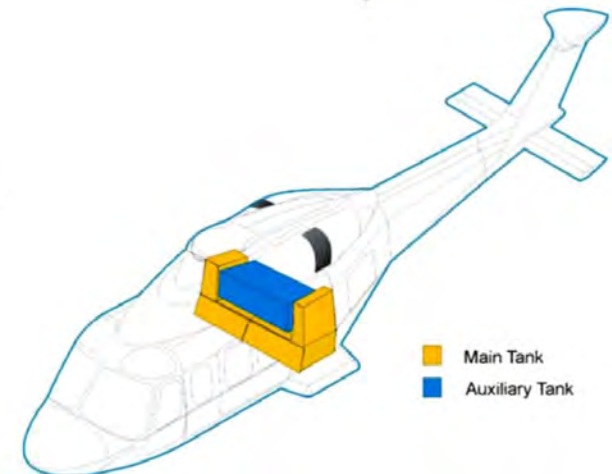
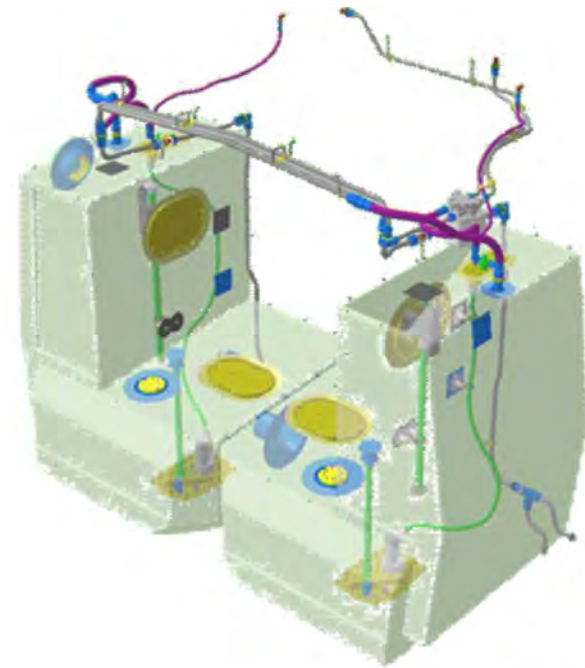
Total Fuel Tank Capacity
(Standard)

1588 liters ≈ 1270 Kg

2 x INTERCONNECTED
CRASH-RESISTANT
BLADDER-TYPE
FUEL TANKS

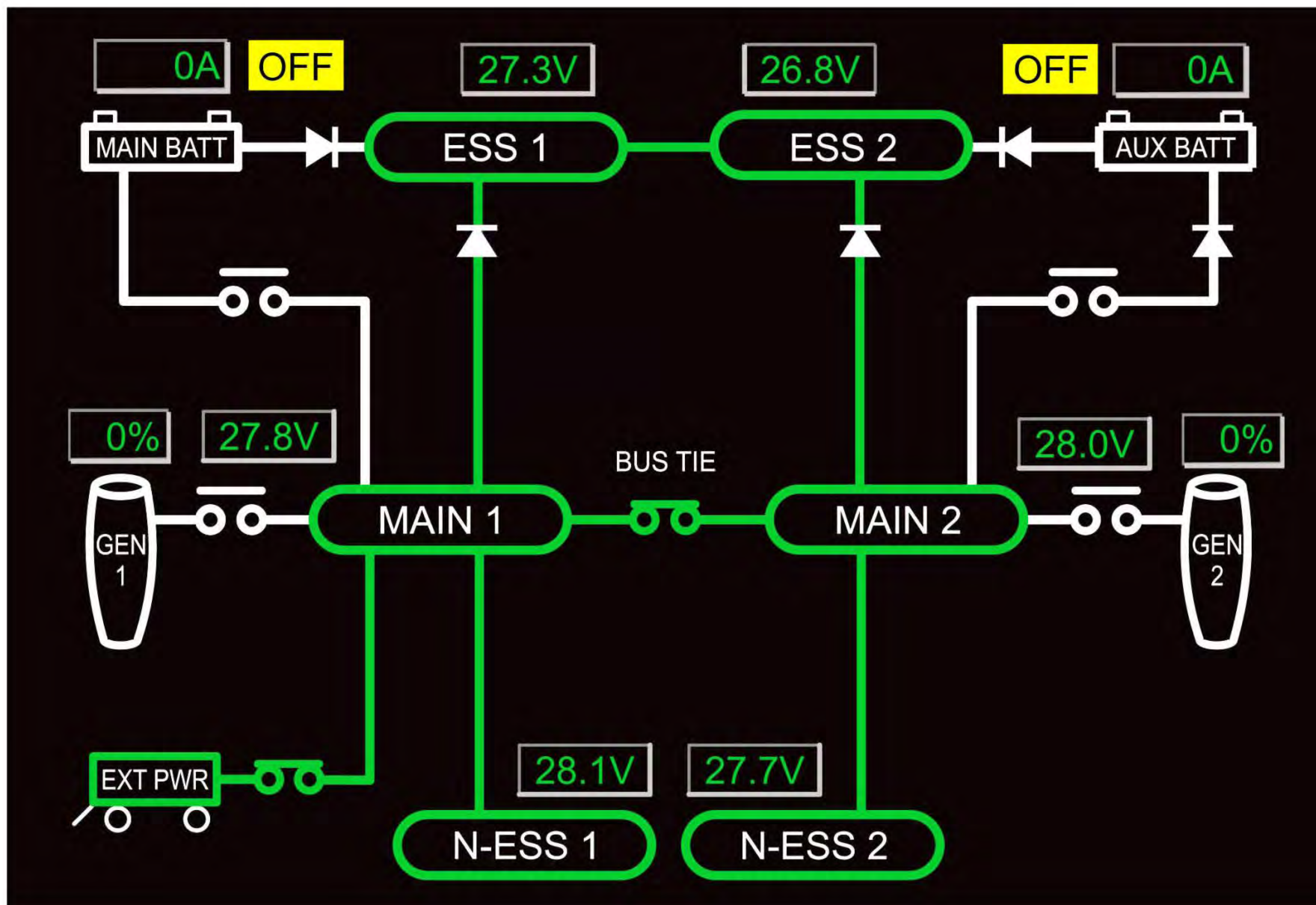
SINGLE-POINT
GRAVITY
REFUELLING

1 x 500-LITER OPTIONAL
AUXILIARY FUEL TANK



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FUEL SYSTEM



28 VDC ELECTRICAL POWER SYSTEM

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ICN-39-A-000000-G-A0126-00419-A-01-1

VENTILATION SYSTEM



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HEATING SYSTEM

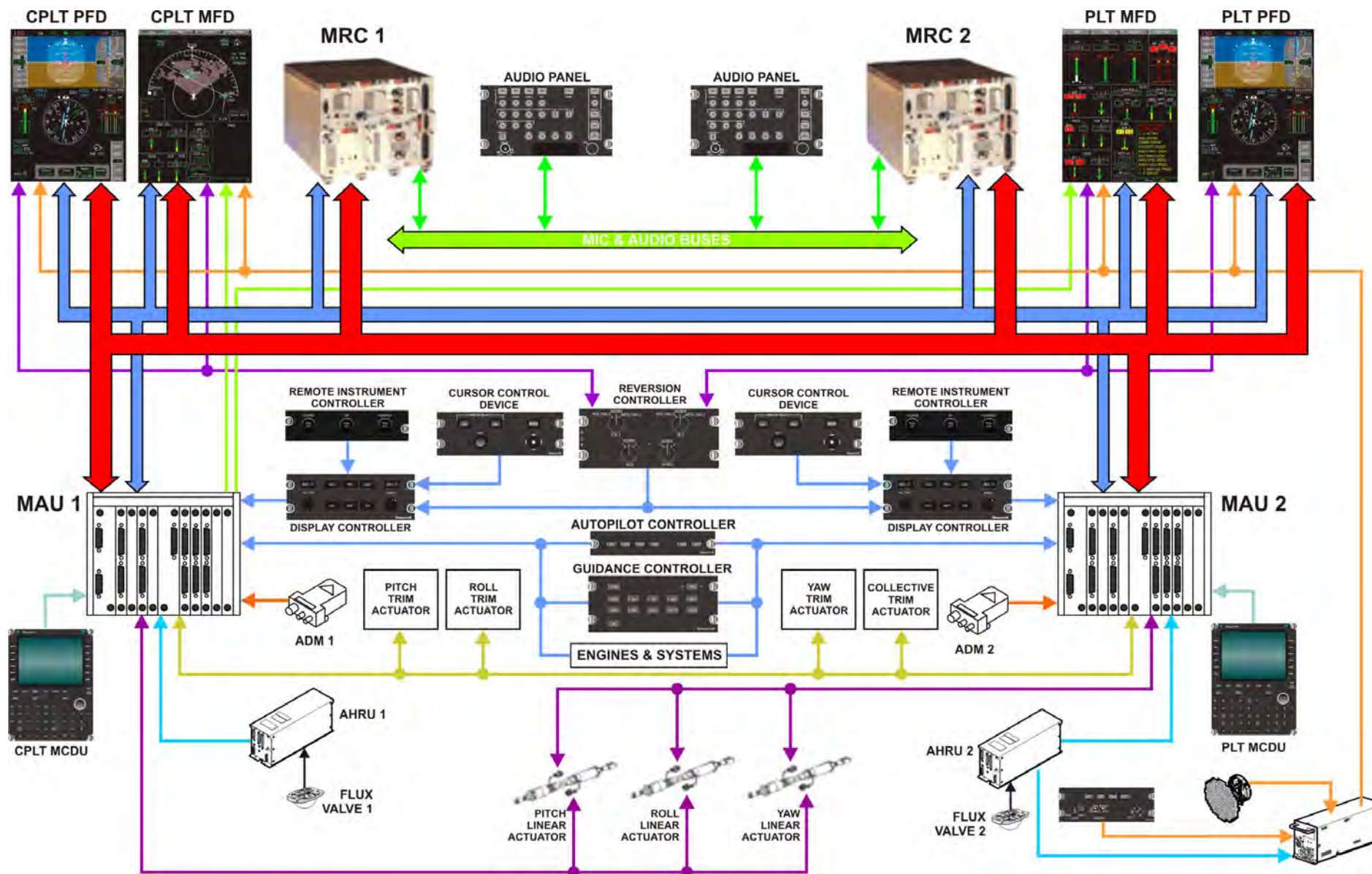


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AIR CONDITIONING (OPTIONAL)

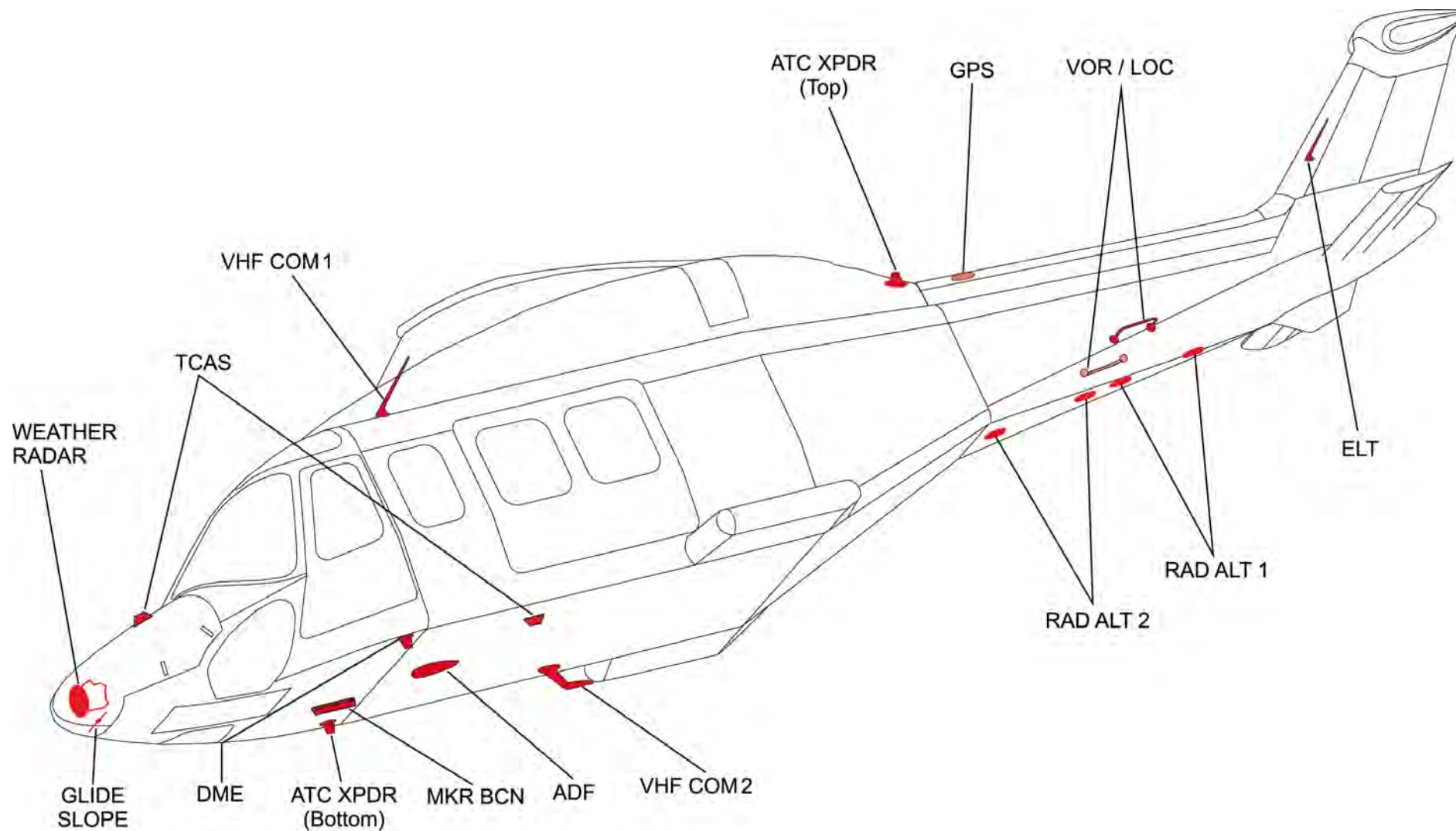
STANDARD INTEGRATED AVIONICS CONFIGURATION

- 4..... DISPLAY UNITS
- 2..... SETS OF DISPLAY CONTROL PANELS
- 2..... MCDU
- 2..... VOR/ILS/MB
- 1..... DME
- 1..... ADF
- 2..... FMS
- 1..... GPS
- 2..... VHF-AM COMM
- 2..... COCKPIT DIGITAL AUDIO CONTROL PANELS
- 1..... CABIN ATTENDANT AUDIO CONTROL PANEL
- 1..... PASSENGER ADDRESS
- 1..... GROUND CREW JACK
- 1..... AWG
- 2..... 3 AXIS DIGITAL AUTOPILOT
- 2;..... ADS
- 2..... AHRS
- 1..... RAD ALT
- 1..... ATC TRANSPONDER
- 1..... CMC



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PRIMUS EPIC® GENERAL ARRANGEMENT



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ANTENNAS (TYPICAL INSTALLATION)

NOISE CHARACTERISTICS

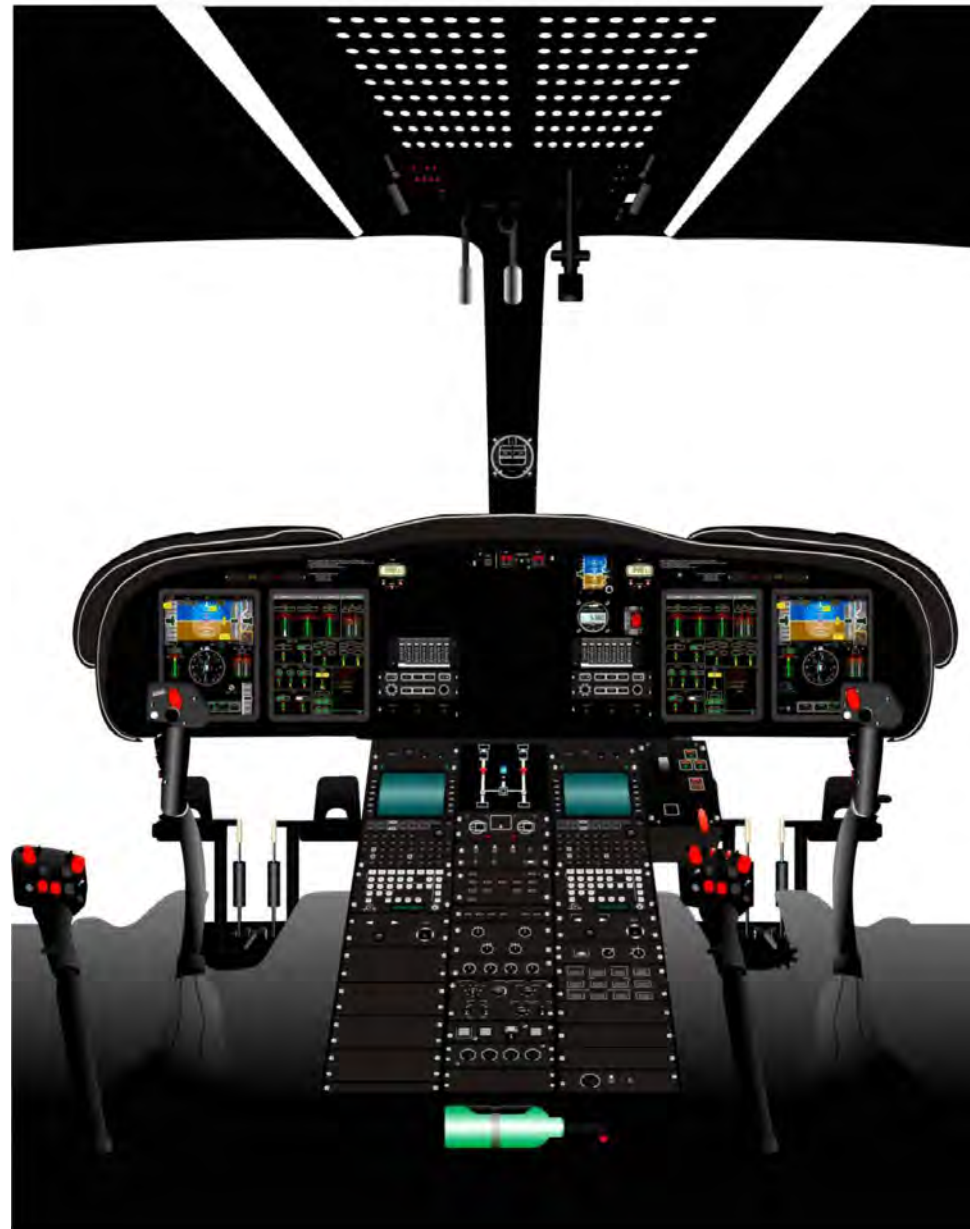
The following noise levels comply with ICAO Annex 16, Chapter 8 Amdt 7, "NOISE requirement".

Model: AW139 Engine Pratt and Whitney PT6C-67C			Gross Weight 6400 Kg		
Configuration	Level Flyover ENPL (EPNdB)	Take Off ENPL (EPNdB)		Approach ENPL (EPNdB)	
Clean aircraft No external kits installed	100% NR	100% NR	102% NR	100% NR	102% NR
	89.8	90.5	91.0	93.0	93.5

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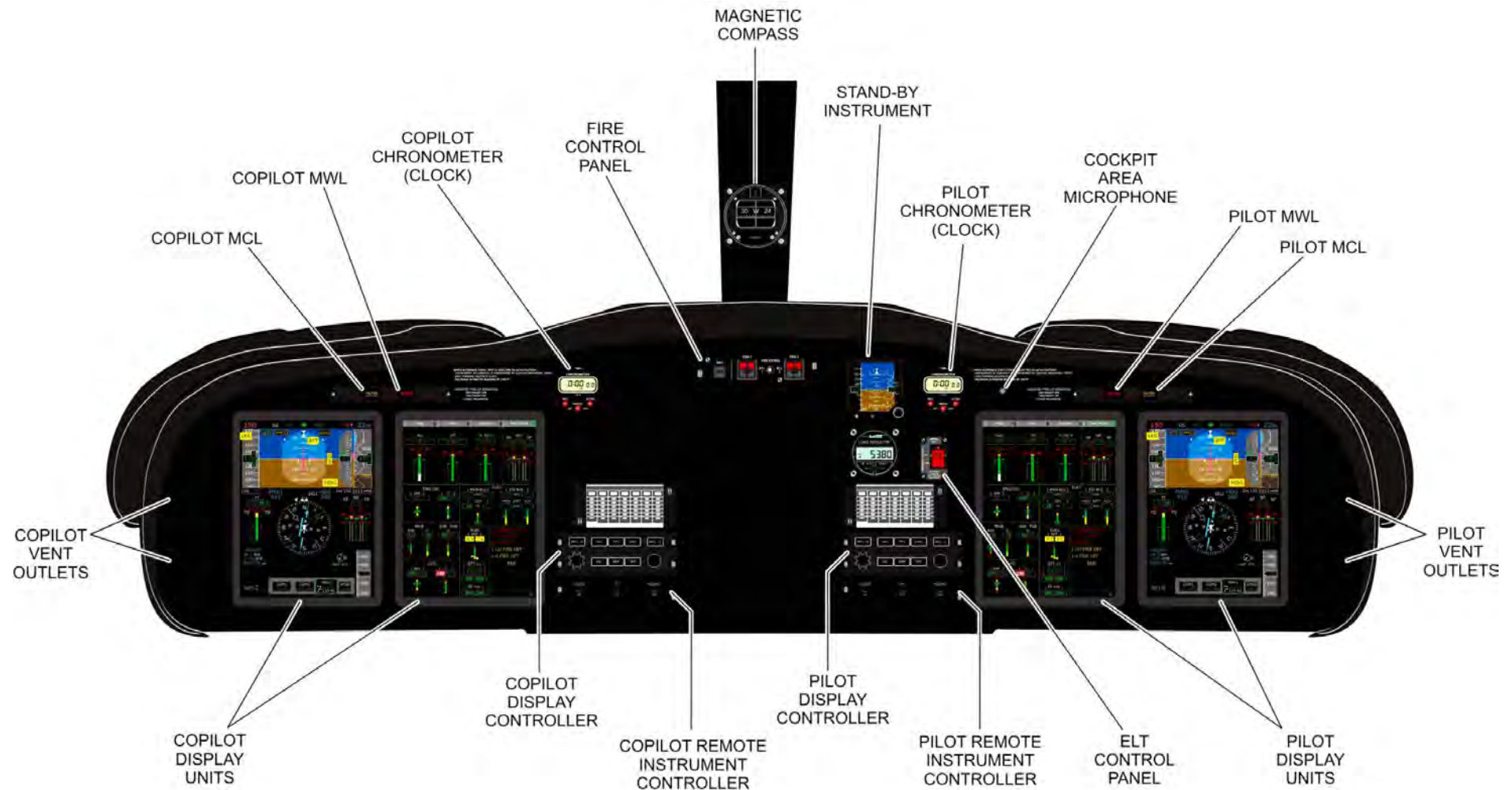
SECTION 03

COCKPIT LAYOUT



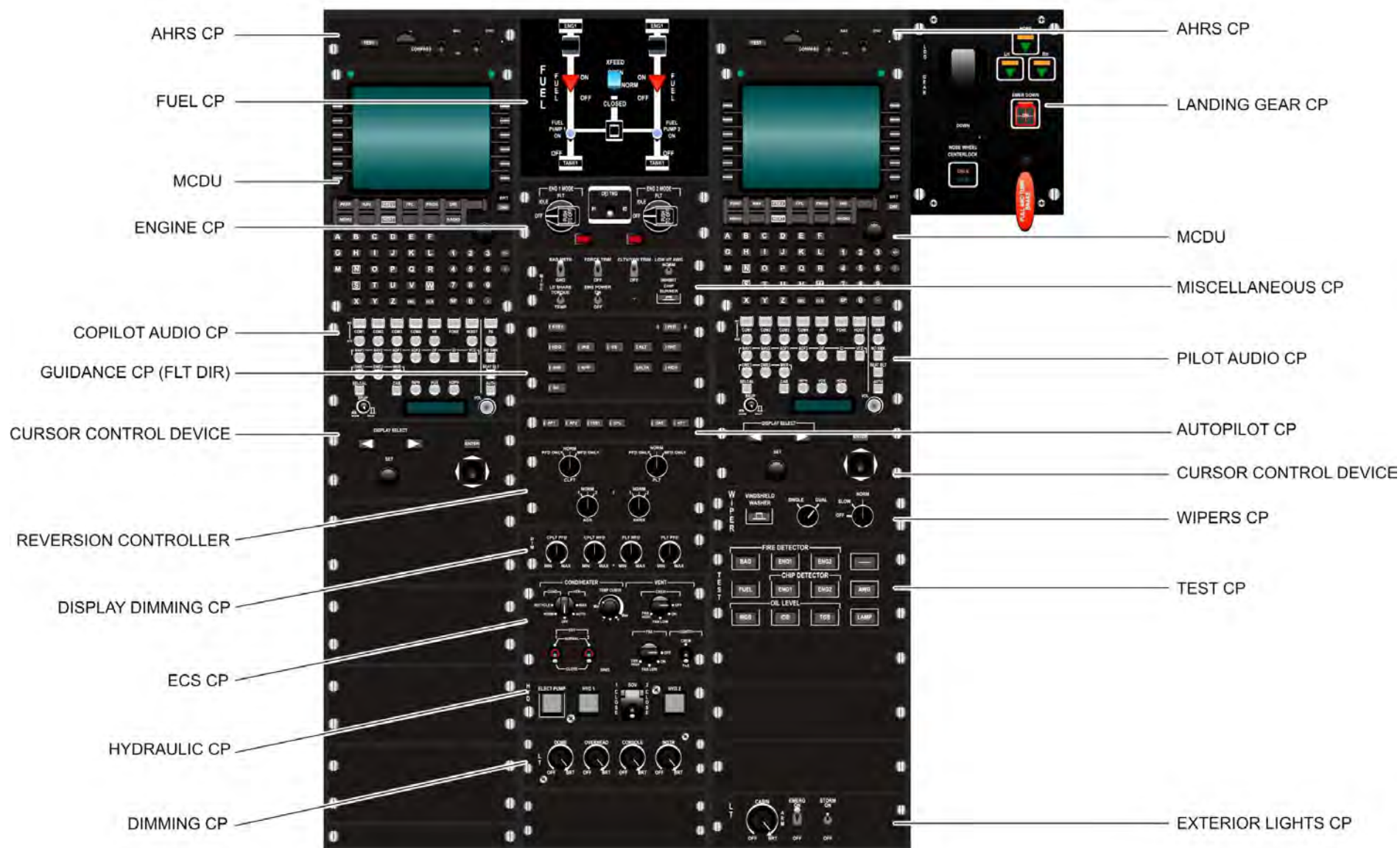
COCKPIT AW139

ICN-39-A-000300-G-A0126-00430-A-01-1



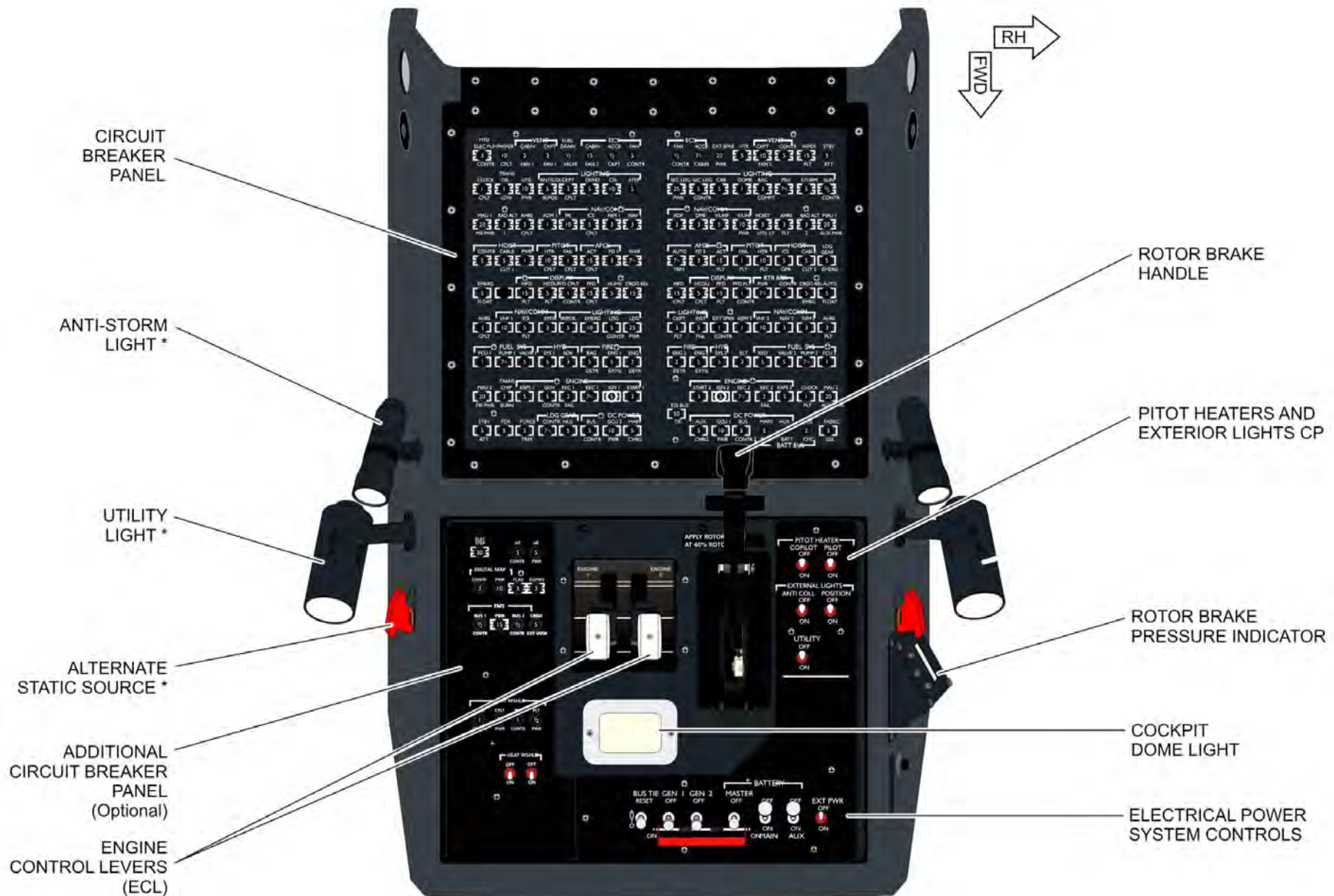
ICN-39-A-000300-G-A0126-00431-A-01-1

INSTRUMENT PANEL



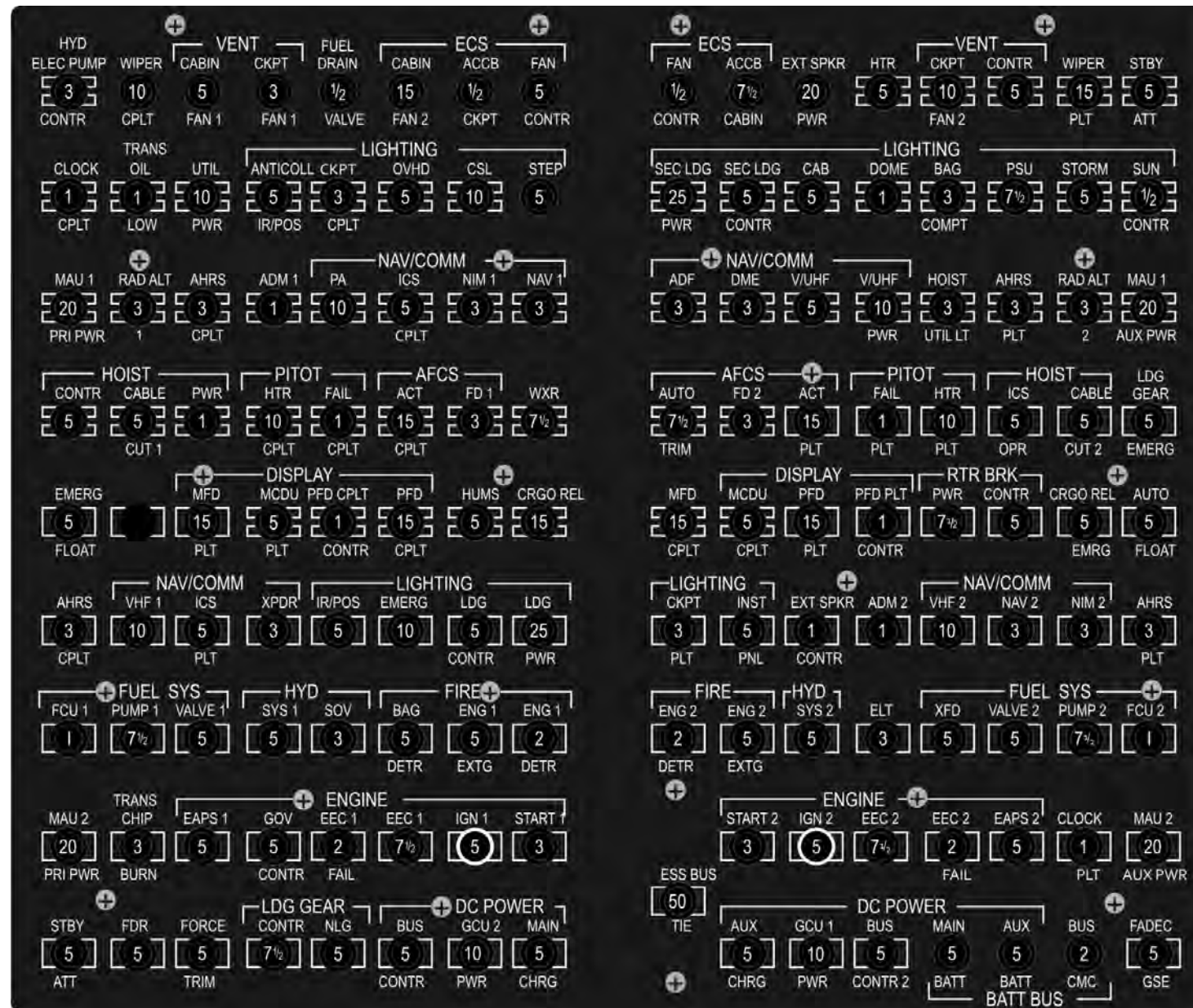
ICN-39-A-000300-G-A0126-00432-A-01-1

CENTRAL CONSOLE



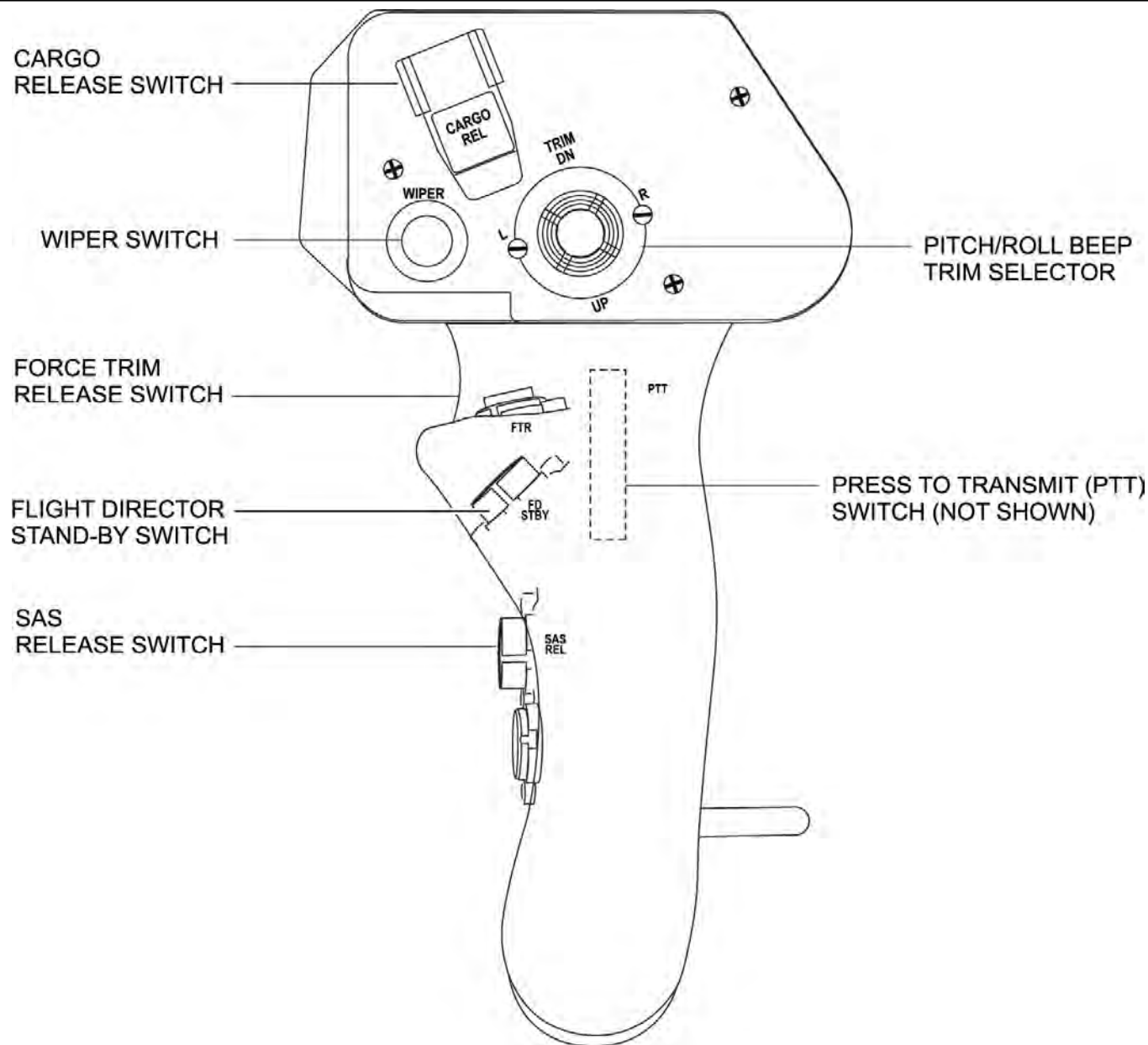
OVERHEAD CONSOLE

ICN-39-A-000300-G-A0126-00433-A-01-1



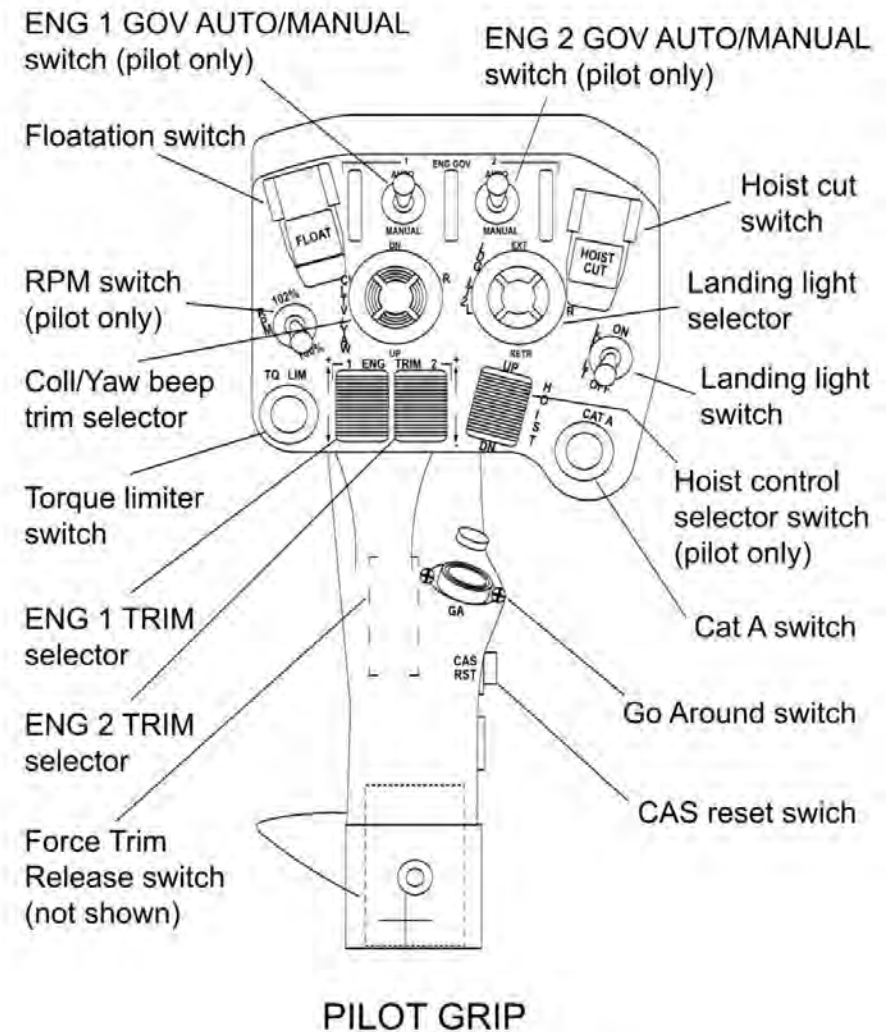
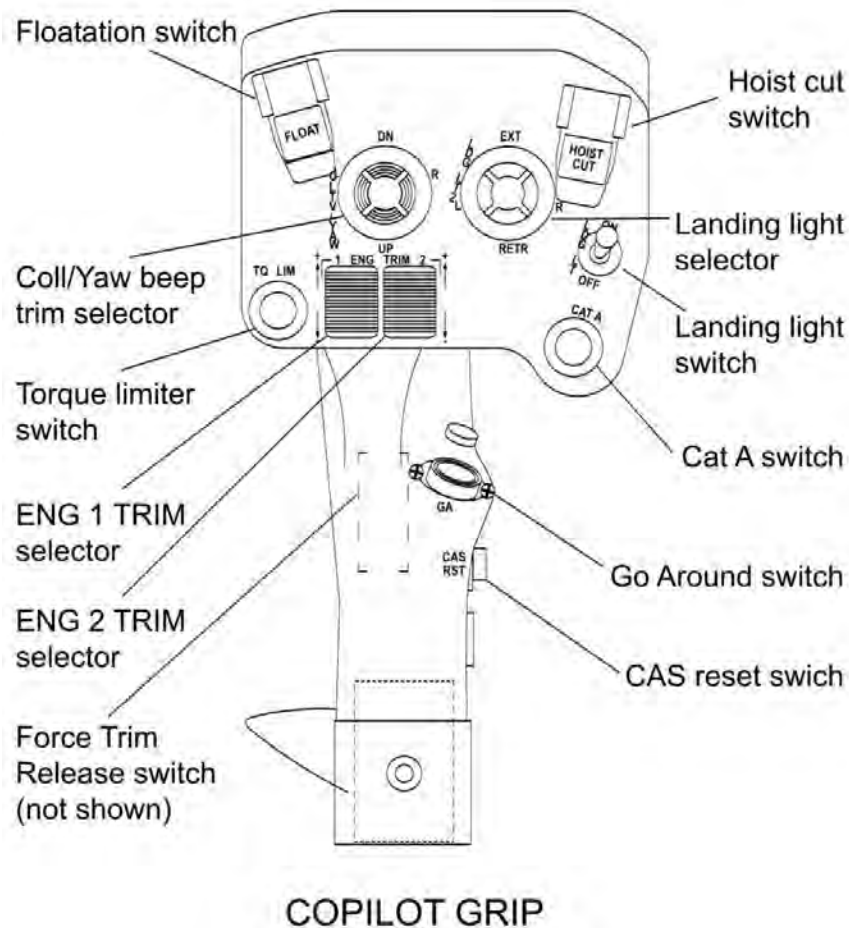
CIRCUIT BREAKER PANEL

ICN-39-A-246000-G-A0126-00390-A-01-1



PILOT/COPILOT CYCLIC STICK

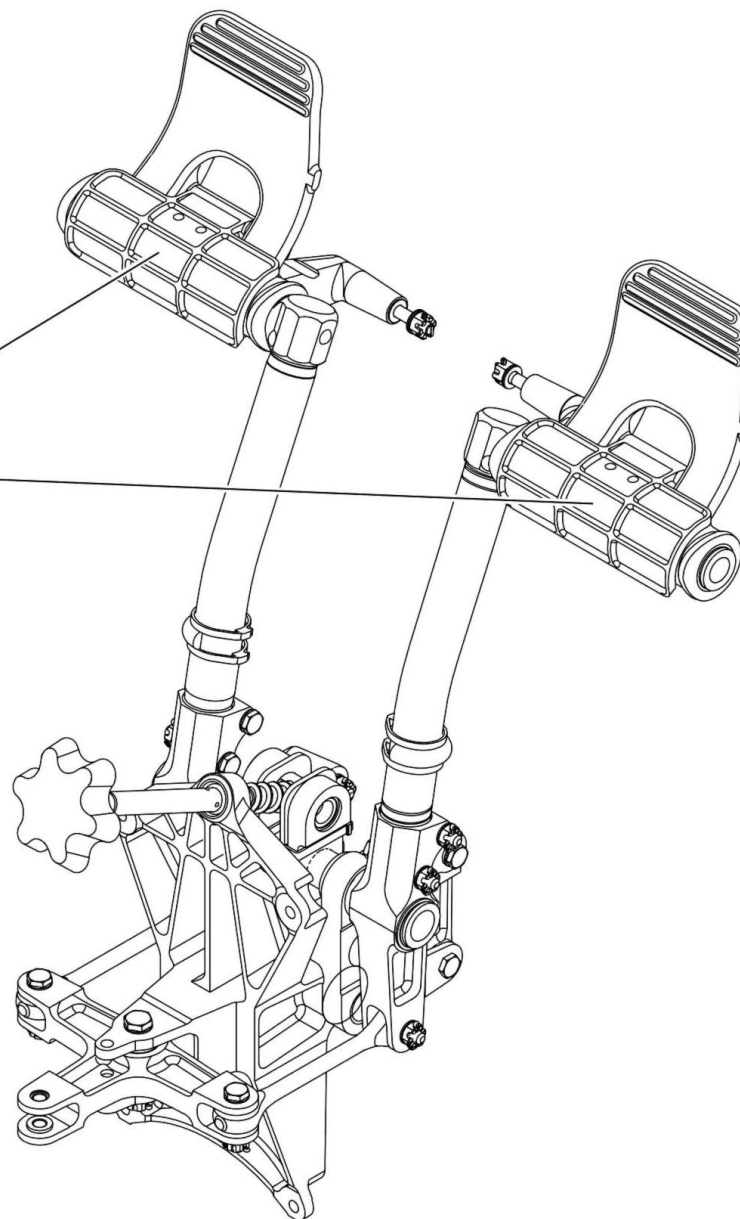
ICN-39-A-000300-G-A0126-03279-A-02-1



ICN-39-A-000300-G-A0126-00434-A-01-1

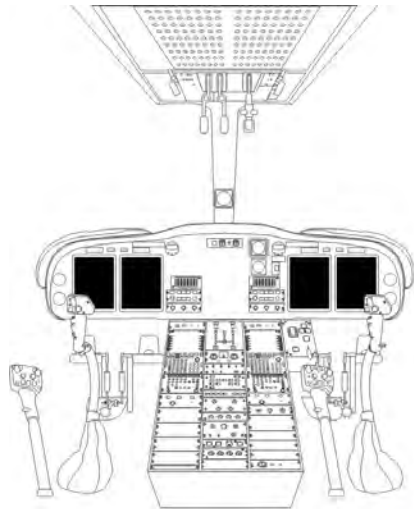
PILOT/COPILOT COLLECTIVE STICK

ACTUATING PLATES OF YAW FORCE
TRIM RELEASE SWITCHES



PEDALS AND FOOT SWITCHES

ICN-39-A-000300-G-A0126-00435-A-01-1



MAIN FUNCTIONS

Use an active matrix liquid crystal display (LCD) technology to represent systems data instead of traditional instruments.



ICN-39-A-000300-G-A0126-00436-A-01-1

DISPLAY UNIT (DU)



PRIMARY FLIGHT DISPLAY

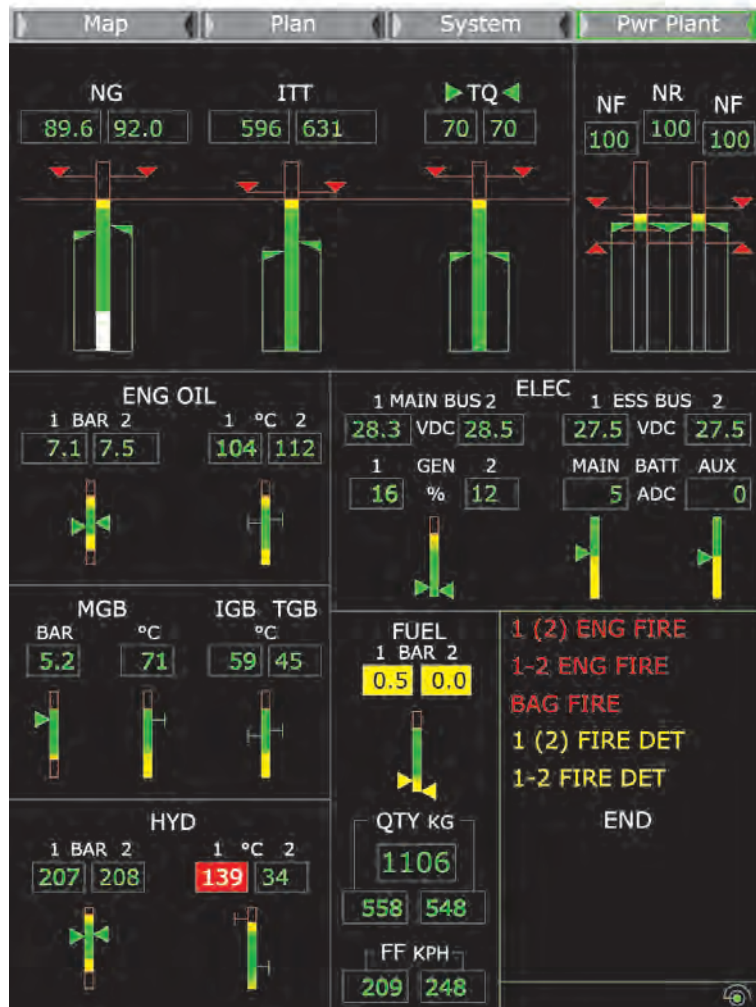
The PFD shows data relevant the primary control instruments in one single display.

MAIN FUNCTIONS

- ADI (Attitude Director Indicator)
- HSI (Horizontal Situation Indicator)
- Airspeed Indicator
- Vertical Speed Indicator
- Baro Altimeter
- PI (Power Index) indicator
- Triple Tachometer Indicator
- Radio Altimeter
- OAT & wind vector
- COM/NAV/XPDR Frequencies

ICN-39-A-000300-G-A0126-00437-A-02-1

PRIMARY FLIGHT DISPLAY (PFD)



MULTI FUNCTION DISPLAY (MFD)

The MFD supplies different plan and NAV formats, synoptic of helicopter systems, PFD and Engine Instrument Crew Alerting System (EICAS) formats based on reversion and maintenance data.

MAIN FUNCTIONS

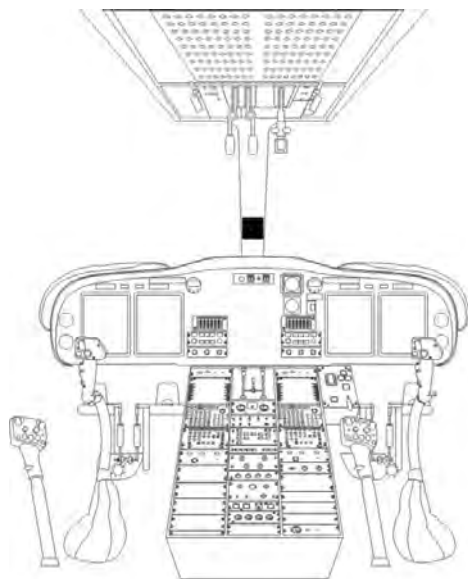
- Engine Primary Data (NG, ITT, TQ)
- Triple Tachometer Indicator (NF, NR, NF)
- Engine secondary indications (ENG OIL press and temp)
- Main Gear Box indications (MGB oil press and temp)
- Intermediate Gear Box and Tail Gear Box indications (IGB temp and TGB temp)
- Hydraulic system indications (HYD press and temp)
- Electrical system indications (ELEC MAIN BUS 1 & 2 voltage, ESS BUS 1 & 2 voltage, GEN 1 & 2 load %, MAIN and AUX BATT load)
- Fuel system indications (FUEL press, QTY quantity and fuel flow FF)
- Crew Alerting System (CAS) messages window

ICN-39-A-000300-G-A0126-00438-A-02-1

MULTI FUNCTION DISPLAY (MFD)

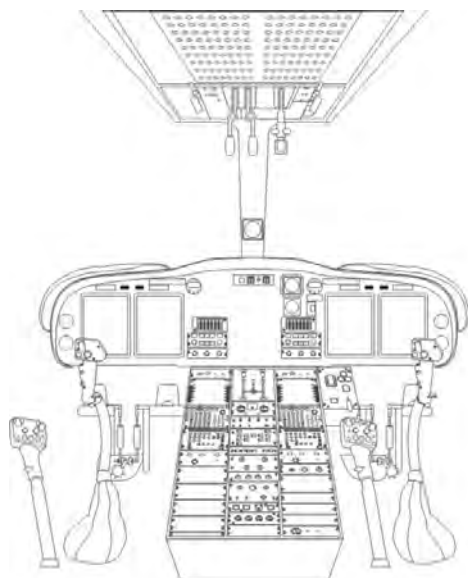
MULTI FUNCTIONS

Magnetic heading detection and display.



MAGNETIC COMPASS

ICN-39-A-000300-G-A0126-00439-A-01-1



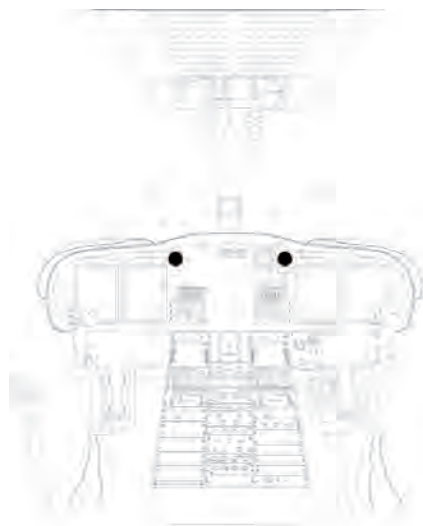
MULTI FUNCTIONS

- Alerting the crew about Master Warning
- Alerting the crew about Master caution
- Individual reset of MW and MC messages



ICN-39-A-000300-G-A0126-00440-A-01-1

MASTER WARNING (MWL) AND MASTER CAUTION LIGHTS (MCL)

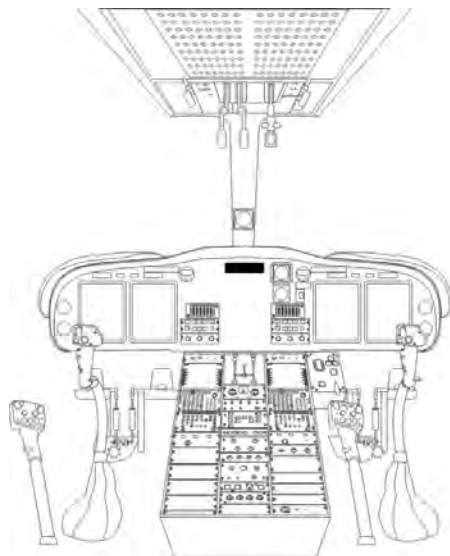


MULTI FUNCTIONS

- Local Time 12 hrs format
- UTC Time (Greenwich time) 24 hrs format
- Flight Time (FT): accumulates up to 99 hrs, 59 min, 59 sec; FT continues to run when the chronometer is in other modes
- Stopwatch (SW): counts up to 99 hrs, 59 min, 59 sec; SW continues to run when the chronometer is in other modes
- Down Counter (DC); counts down up to 99hrs, 59 min, 59 sec; DC continues to run when the chronometer is in other modes
- Independent power source to keep in memory Local Time, UTC Time... (AAA battery size)

ICN-39-A-000300-G-A0126-00441-A-02-1

PILOT/COPILOT CLOCK



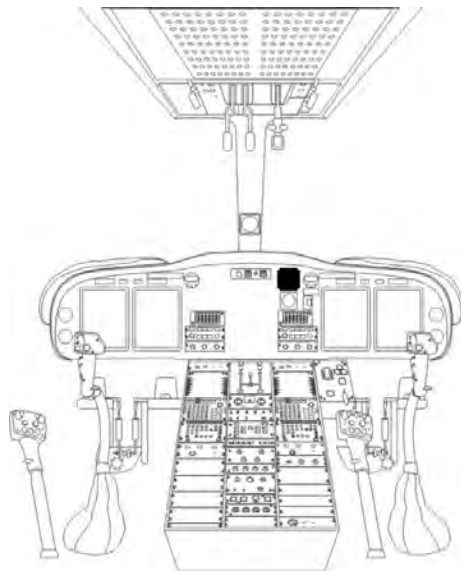
MULTI FUNCTIONS

- Engine Fire Warning Display
- Fire Extinguisher System arming
- Engine Fire Extinguisher Discharge selection
- Baggage Compartment Smoke Detection warning



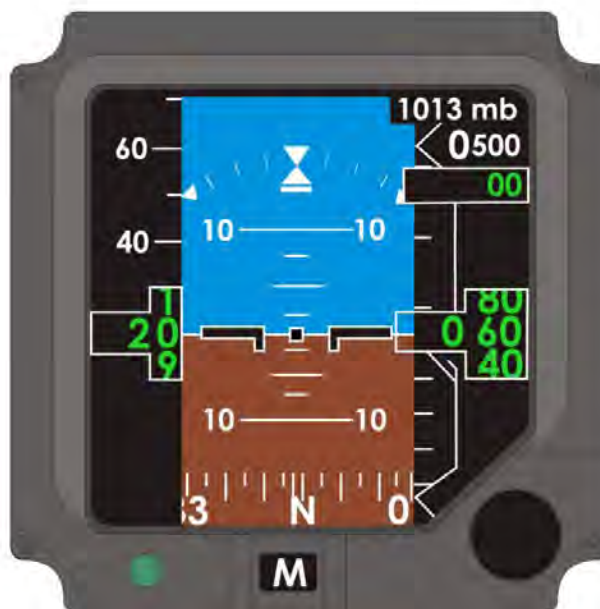
ICN-39-A-000300-G-A0126-00442-A-01-1

FIRE DETECTION/EXTINGUISH CONTROL PANEL



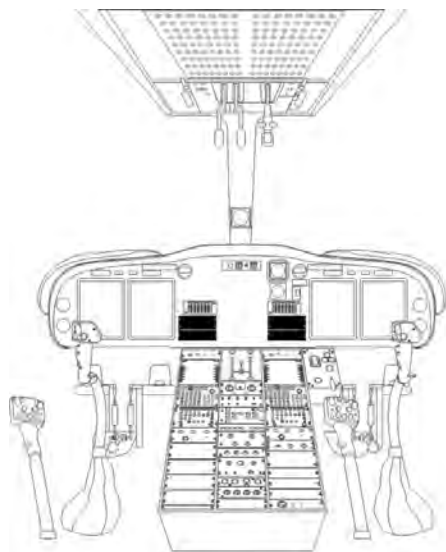
MULTI FUNCTIONS

- Attitude detection and display
- Airspeed detection and display
- baro altitude detection and display
- Vertical speed detection and display
- Heading display
- VOR/ILS deviations display
- MB indication display



ADI STANDBY

ICN-39-A-000300-G-A0126-00443-A-01-1



DC MAIN FUNCTIONS

- PRV (Preview) LNAV (Lateral NAVigation) selection
- Bearing pointer selection
- HSI modes and data (MAP) selection
- Altitude reference setting
- BARO altimeter reference setting

RIC MAIN FUNCTION

- COURSE selection
- DH (Decision Height) setting
- HEADING setting

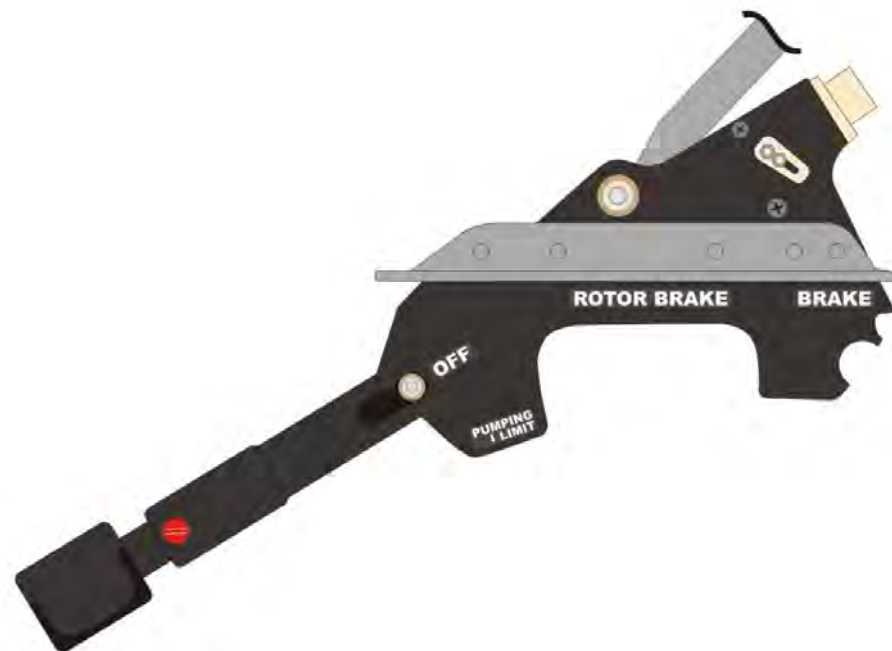
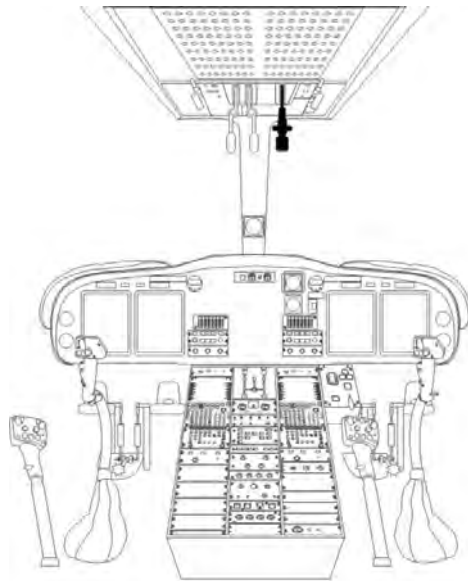


ICN-39-A-000300-G-A0126-00444-A-01-1

DISPLAY CONTROLLER (DC) AND REMOTE INSTRUMENT CONTROLLER (RIC)

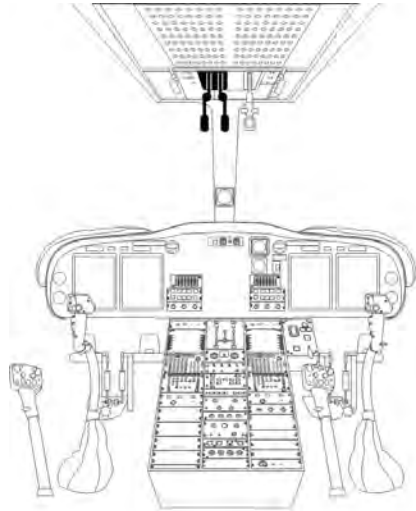
MAIN FUNCTIONS

- Stop the rotors



ICN-39-A-000300-G-A0126-00445-A-01-1

ROTOR BRAKE CONTROL LEVER (RBCL)



LATERAL VIEW

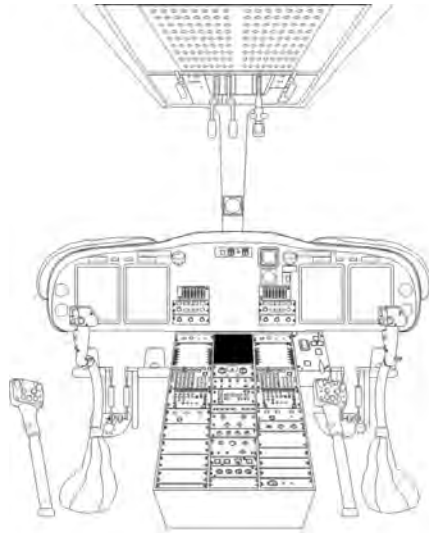


FRONT VIEW



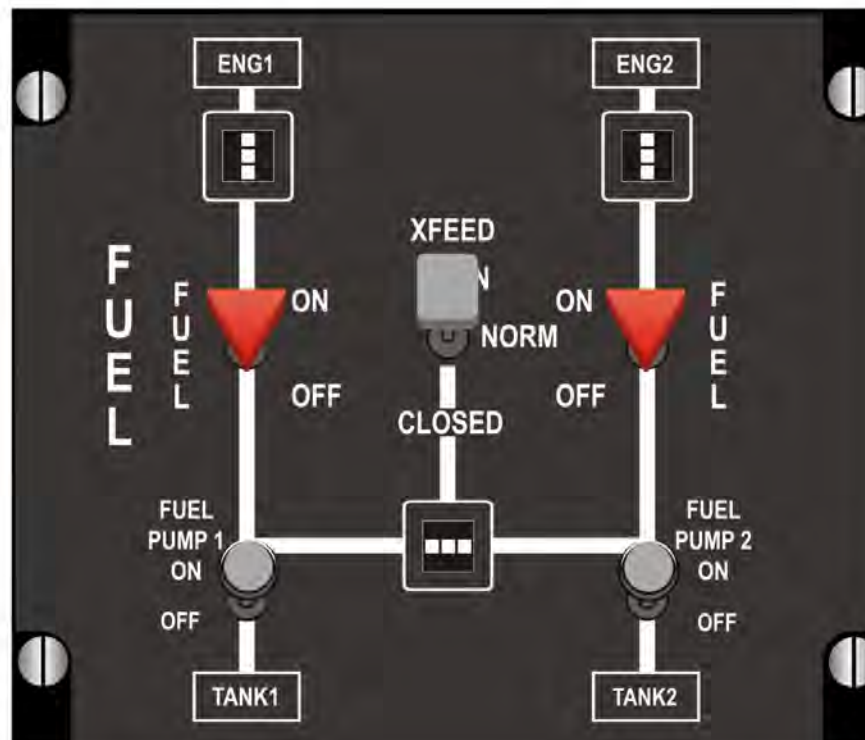
ICN-39-A-000300-G-A0126-00446-A-01-1

ENGINE CONTROL LEVER (ECL)



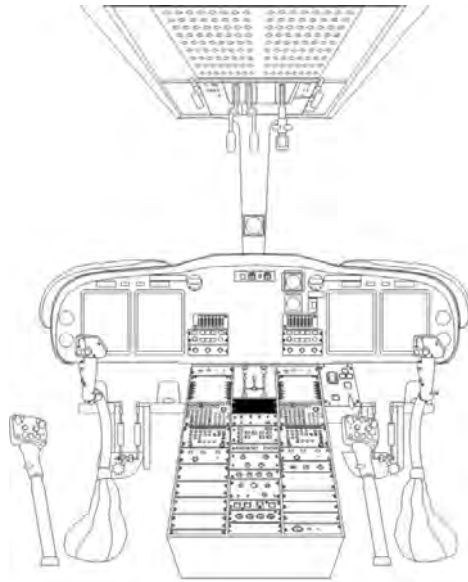
MAIN FUNCTIONS

- Control of fuel shut-off valves
- Control of fuel booster pumps
- Control of fuel crossfeed valve
- Give a visual indication of the valve position



FUEL CONTROL PANEL

ICN-39-A-000300-G-A0126-00447-A-01-1



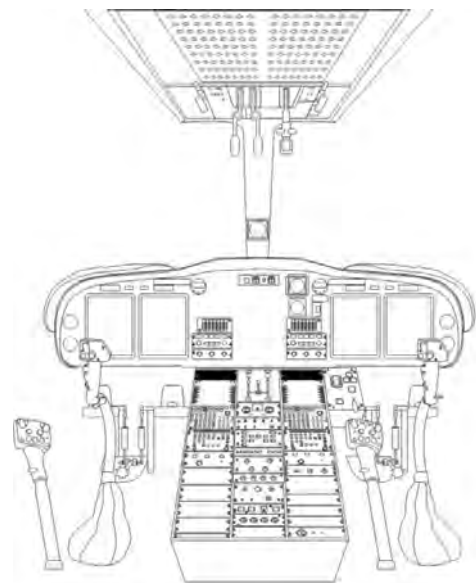
MAIN FUNCTIONS

- Engines mode selection (OFF - IDLE - FLT)
- OEI Training mode selection
- Engine fire indications



ICN-39-A-000300-G-A0126-00448-A-01-1

ENGINE CONTROL PANEL



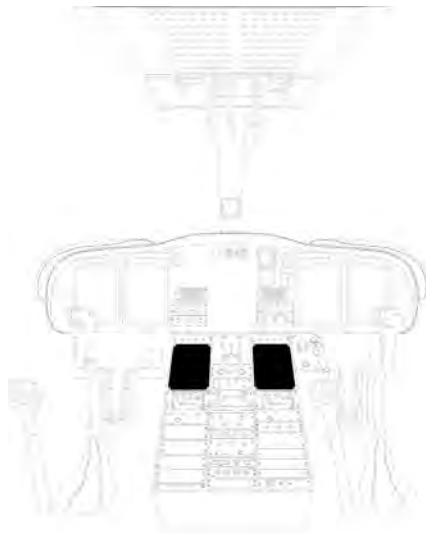
MAIN FUNCTIONS

- AHRS self-test control
- heading detection mode selection
- Free DG control



ICN-39-A-000300-G-A0126-00449-A-01-1

AHRS CONTROL PANEL



MAIN FUNCTIONS

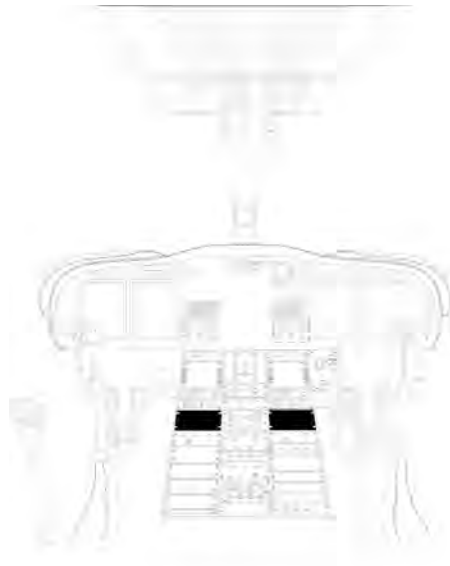
Control and Display of:

- Flight Management System (FMS)
- Communication radios
- Navigation radios
- XPDR/TCAS



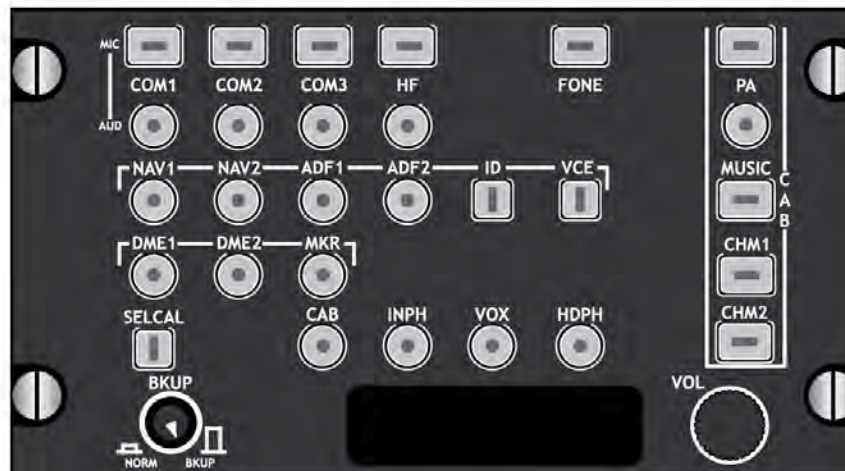
MULTI FUNCTION CONTROL DISPLAY UNIT (MCDU)

ICN-39-A-000300-G-A0126-00450-A-02-1



MAIN FUNCTIONS

- COM/NAV received audio selection & adjustment
- Communication Transmitter selection
- Interphone/Cabin/Crew selection & adjustment
- Chime selection (FSB/NS Selection)
- Backup/Emergency transmission control
- Audio Volume Control
- VOX Control

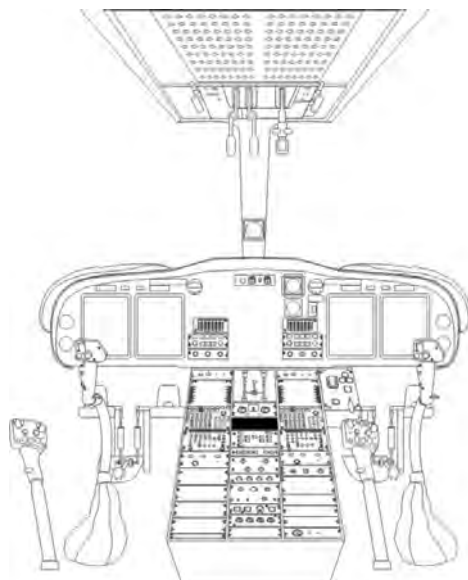


AUDIO CONTROL PANEL

ICN-39-A-000300-G-A0126-00451-A-02-1

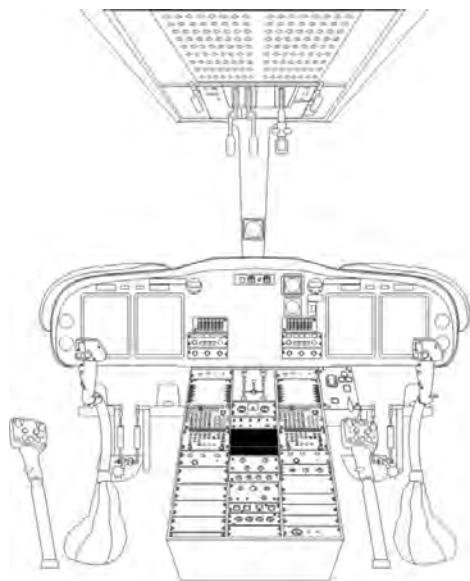
MAIN FUNCTIONS

- Radio Master control
- Force Trim selection
- Audio Warning Generator mode selection
- Engine matching parameter selection
- Chip burner control (gearbox only)



ICN-39-A-000300-G-A0126-00452-A-01-1

MISCELLANEOUS CONTROL PANEL



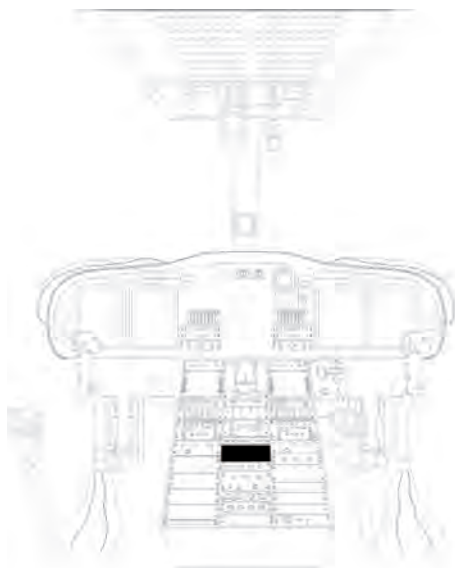
MAIN FUNCTIONS

- Selection of Auto Pilot (AP) modes
- Selection of Flight Director (FD) modes
- Selection of the "PILOT IN COMMAND"



GUIDANCE CONTROLLER AND AUTOPILOT CONTROL PANEL

ICN-39-A-000300-G-A0126-00453-A-01-1



MAIN FUNCTIONS

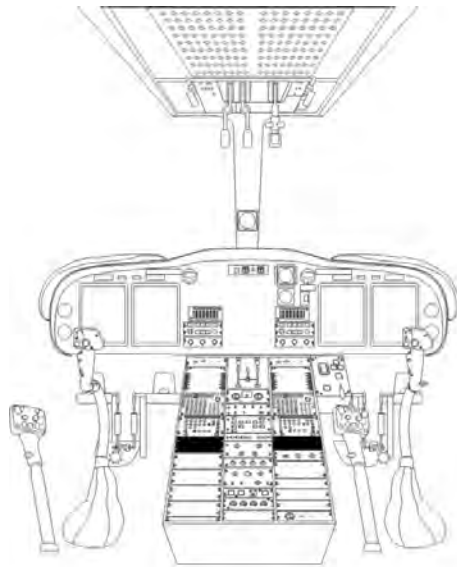
Permits manual reversion to single-unit operation for DU's in pilot's and co-pilot's stations.

Manual reversion to single-source display for the Air Data System (ADS) and the Attitude and Heading Reference System (AHRS).



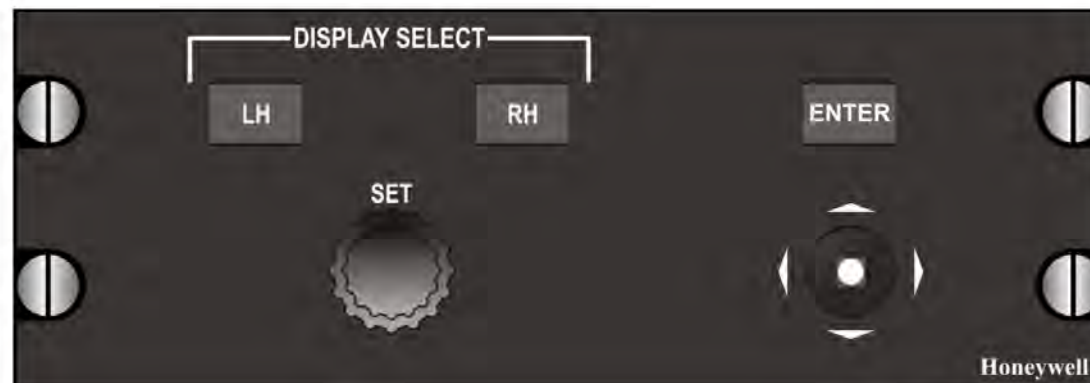
ICN-39-A-000300-G-A0126-00454-A-02-1

REVERSION CONTROL PANEL



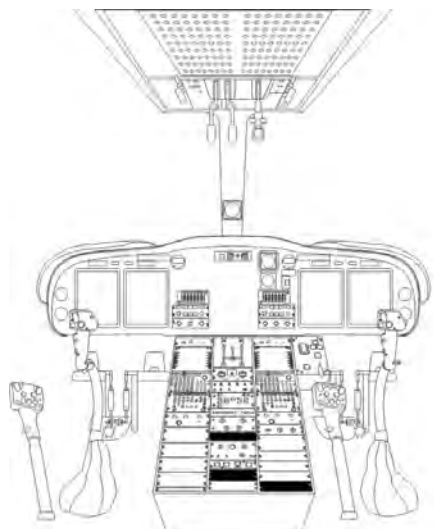
MAIN FUNCTIONS

- Selection of Display Units for cursor
- Control of cursor position
- Confirmation of selection
- Scroll of lists, values or pull-down menu options



ICN-39-A-000300-G-A0126-00455-A-01-1

CURSOR CONTROL DEVICE (CCD)



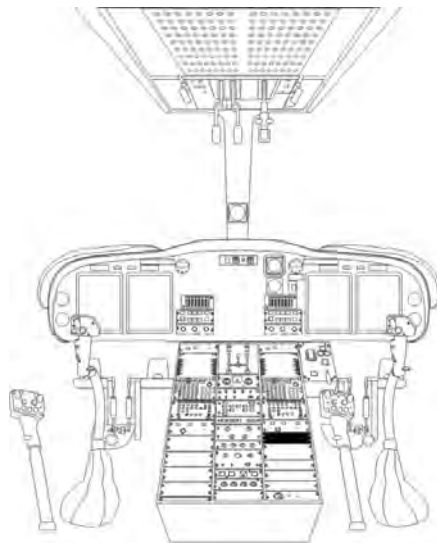
MAIN FUNCTIONS

- Brightness adjustment of Display Units
- Brightness adjustment of cockpit panels and instruments
- Brightness adjustment of cabin dome lights
- Control of Emergency lights
- Control of Anti-storm lights



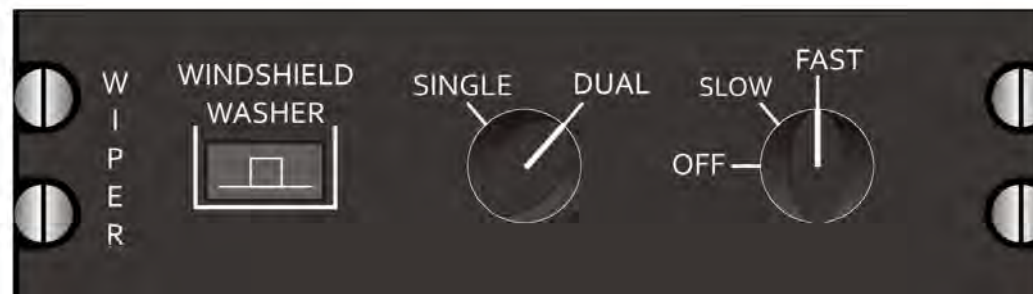
ICN-39-A-000300-G-A0126-00456-A-01-1

LIGHT CONTROL PANEL



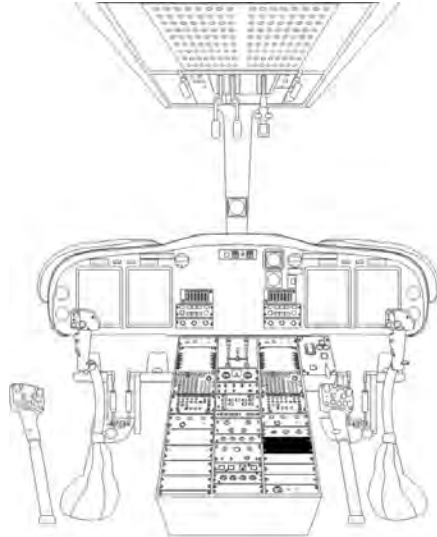
MAIN FUNCTIONS

- Selects operation mode and speed of the windscreen wipers



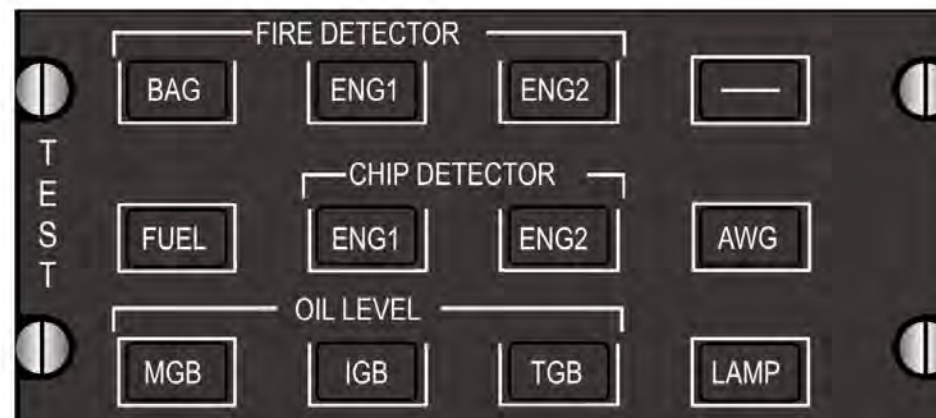
ICN-39-A-000300-G-A0126-00457-A-01-1

WIPER CONTROL PANEL



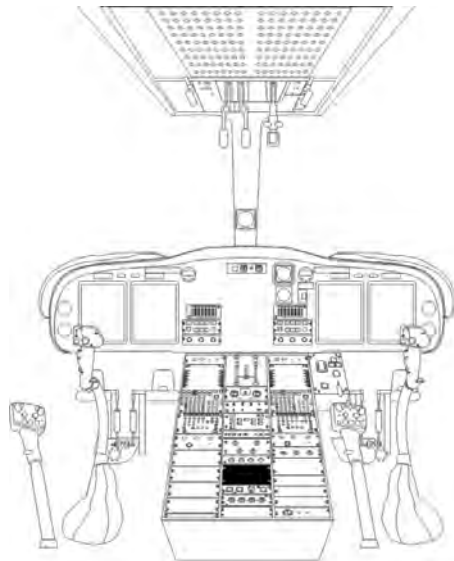
MAIN FUNCTIONS

- Starts the self test of different systems by pushing the relevant push button



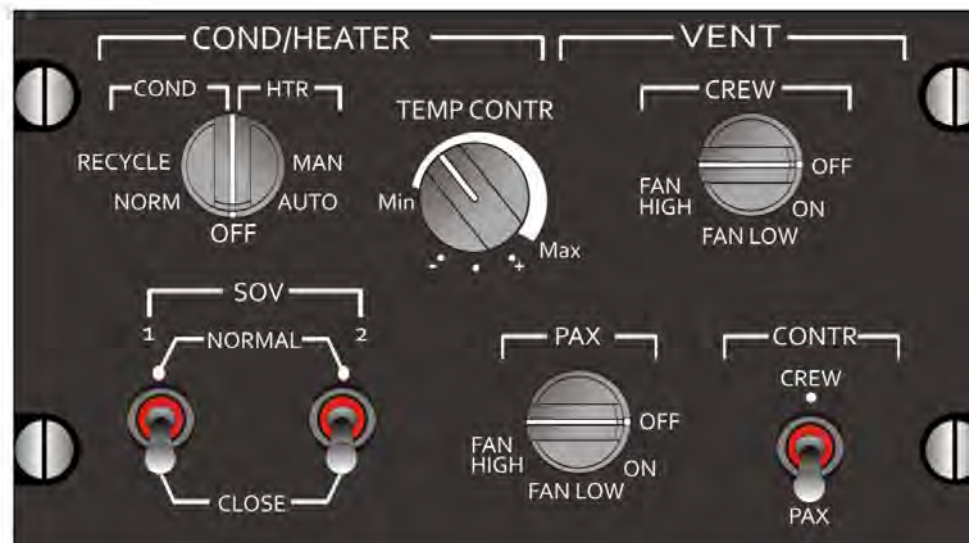
ICN-39-A-000300-G-A0126-00458-A-01-1

TEST CONTROL PANEL



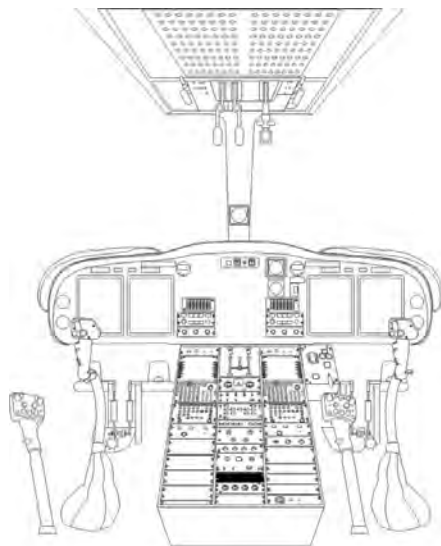
MAIN FUNCTIONS

- Cockpit and cabin heating and ventilation control
- Bleed air Shut-Off Valve control
- Cockpit and cabin fan control
- Temperature selection



ICN-39-A-000300-G-A0126-00459-A-01-1

ECS CONTROL PANEL



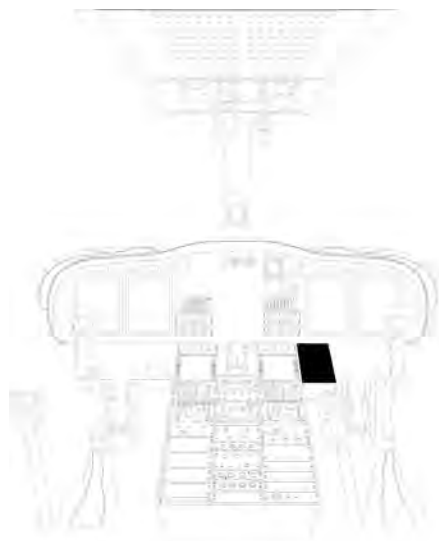
MAIN FUNCTIONS

- Hydraulic systems low pressure warning
- Hydraulic systems high temperature warning
- Control of electrical hydraulic pump (on ground only)
- Control of Servo Shut-off



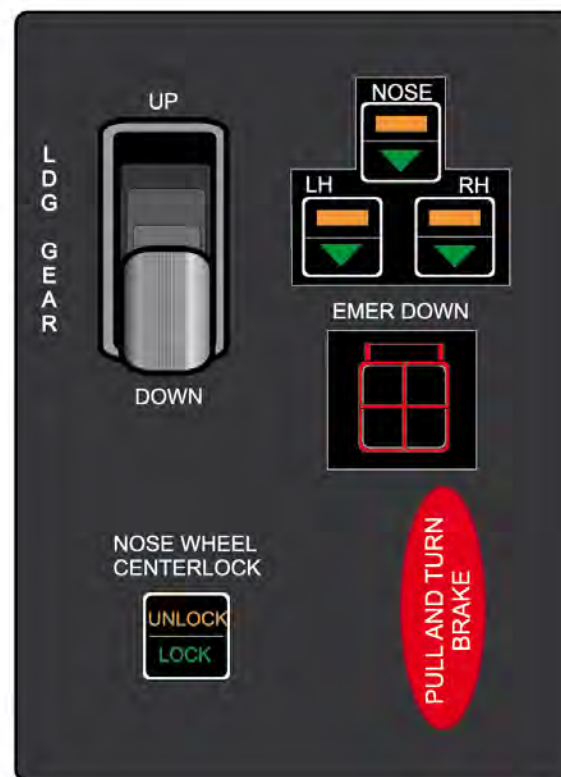
ICN-39-A-000300-G-A0126-00460-A-01-1

HYDRAULIC CONTROL PANEL



MAIN FUNCTIONS

- Landing Gear Normal Extension/Retraction Control
- Landing Gear Emergency Extension Control
- Landing Gear Position Indication
- Nose Wheel Centerlock Control and Indication
- Parking Brake Handle



LANDING GEAR CONTROL PANEL

ICN-39-A-000300-G-A0126-00461-A-02-1

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SECTION 12

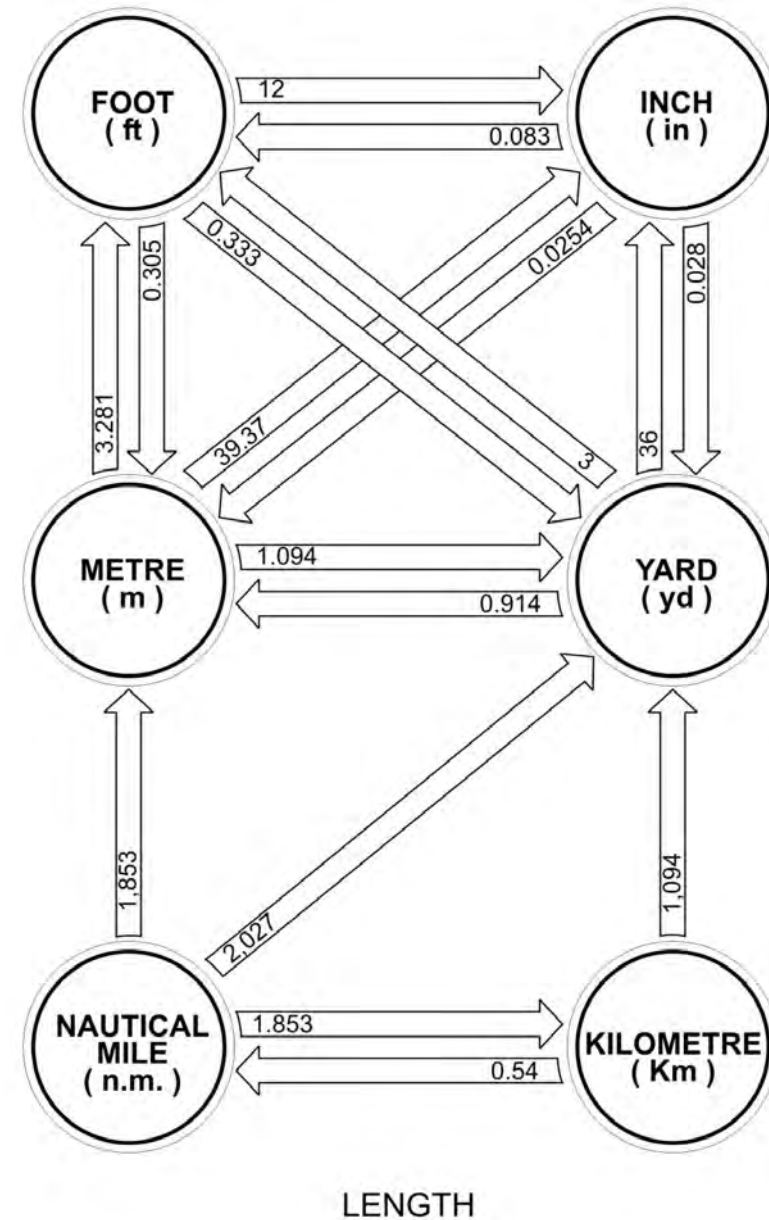
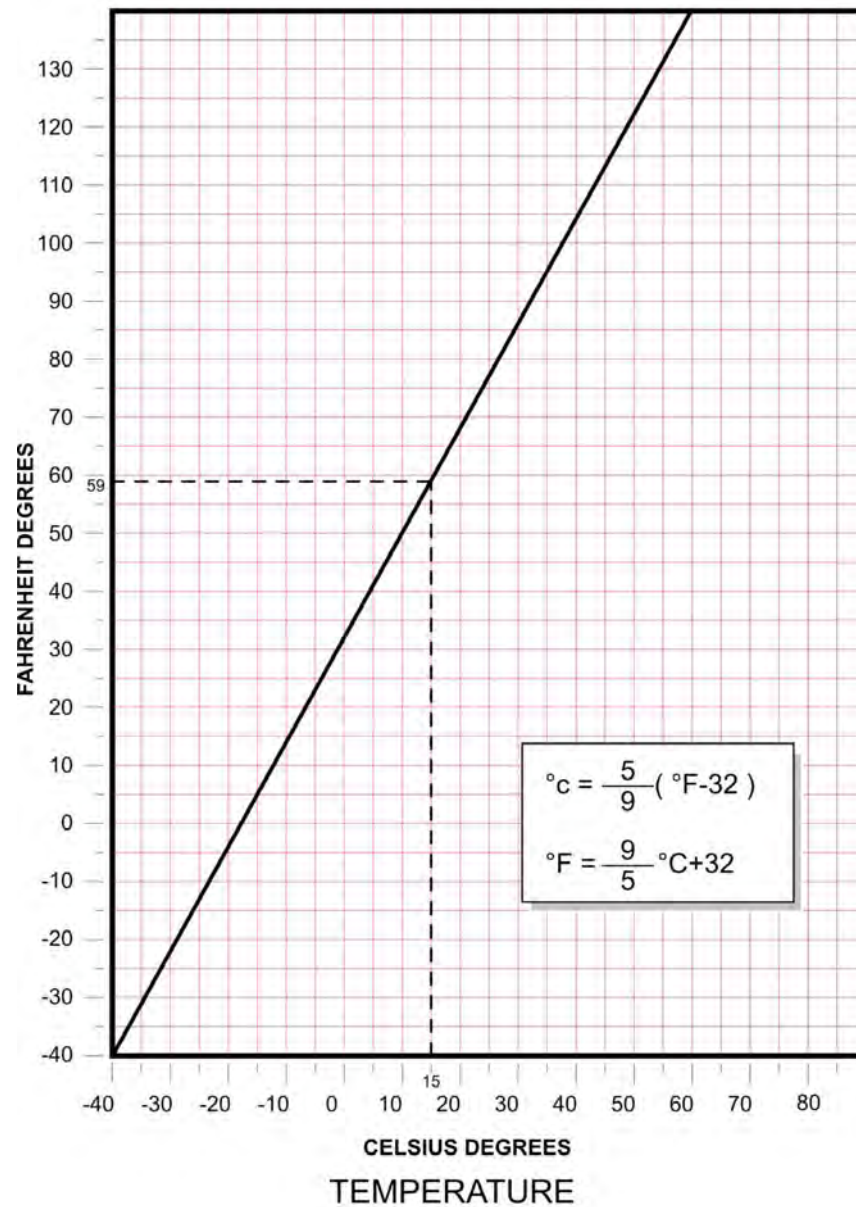
CONVERSION TABLES

GENERAL

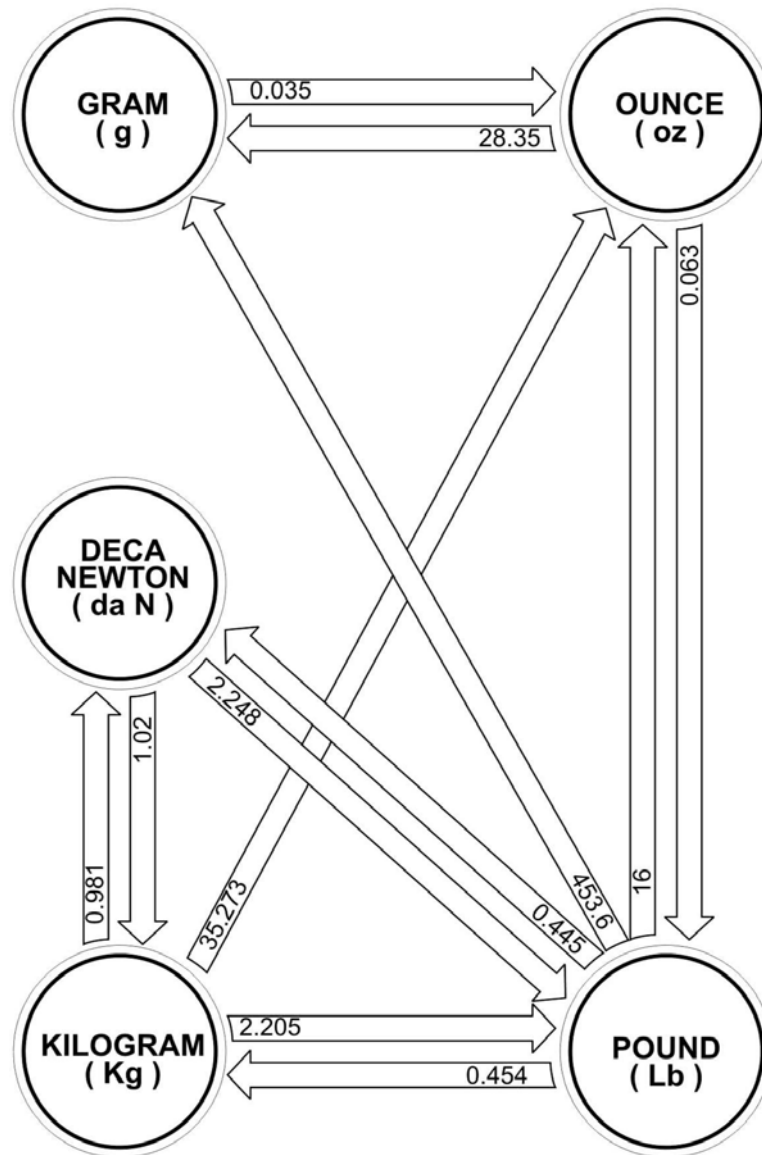
The following conversion tables are included:

- Temperature
- Length
- Pressure
- Torque
- Volume (US units)
- Volume (Imperial units)
- Power
- Weight / Force
- Jet B / JP4 Fuel
- Jet A1 / JP5 / JP8 Fuel

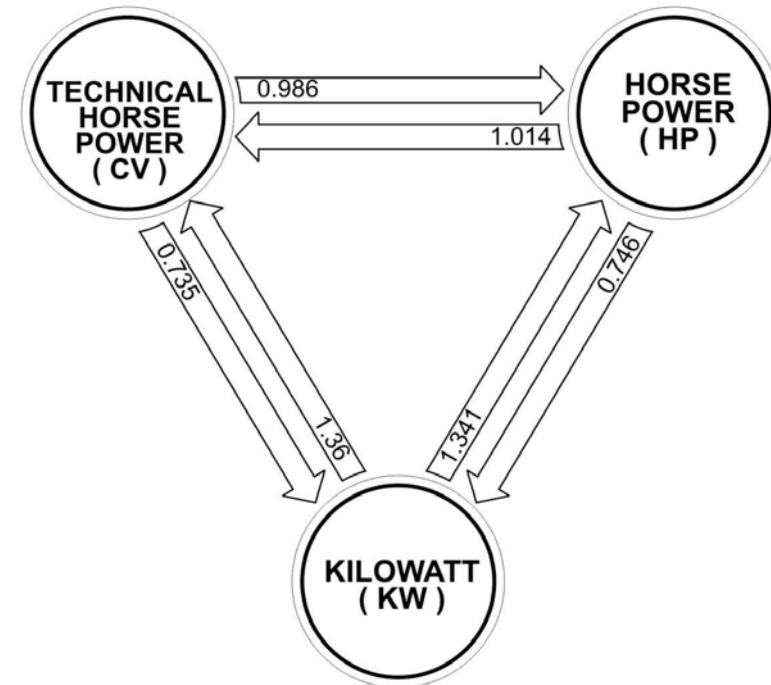
To obtain the unit conversion always multiply by the number following in the arrow.



ICN-39-A-001200-G-A0126-00462-A-01-1

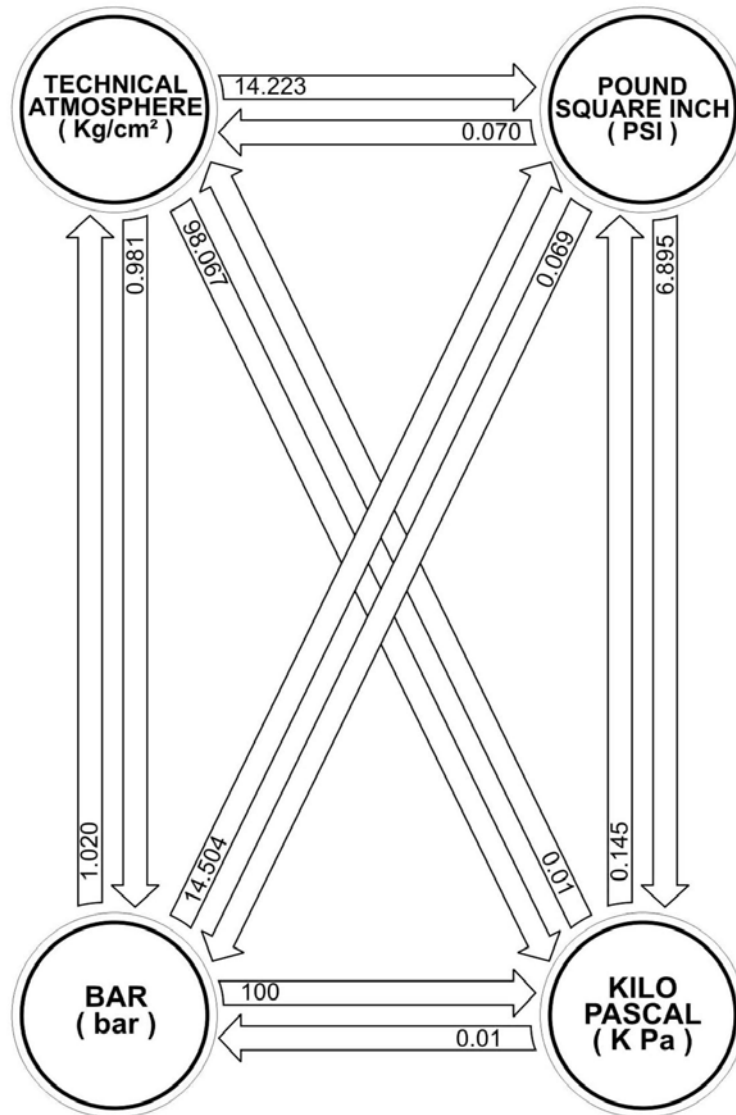


WEIGHT/FORCE

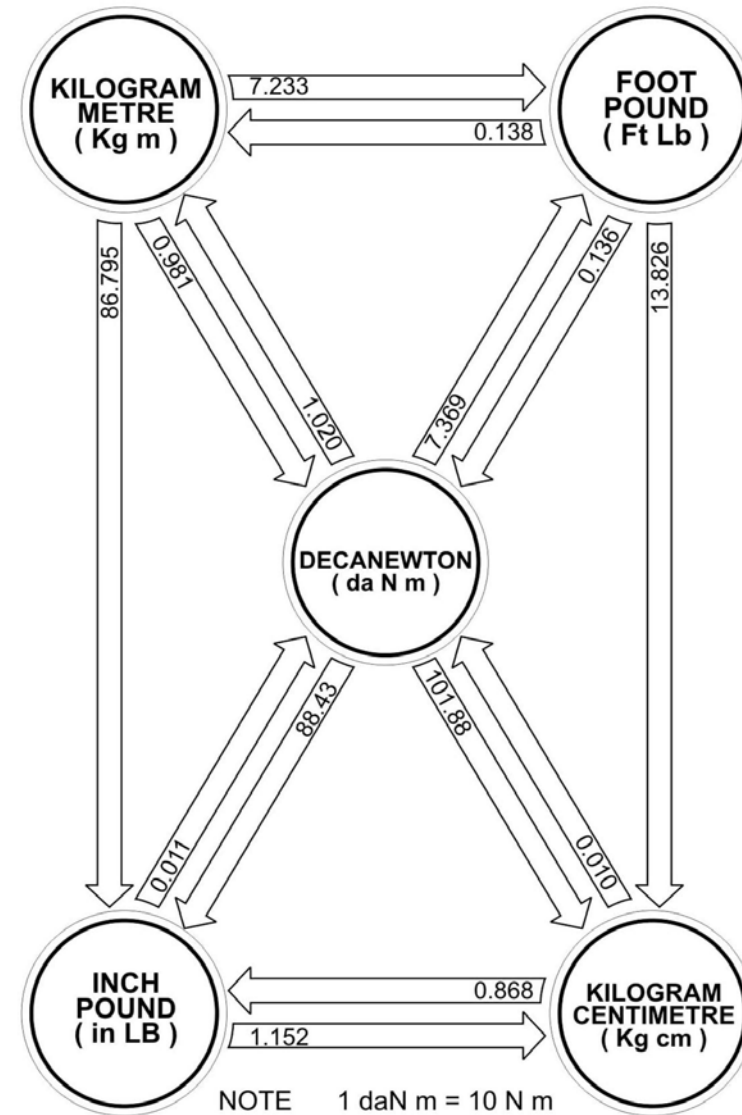


POWER

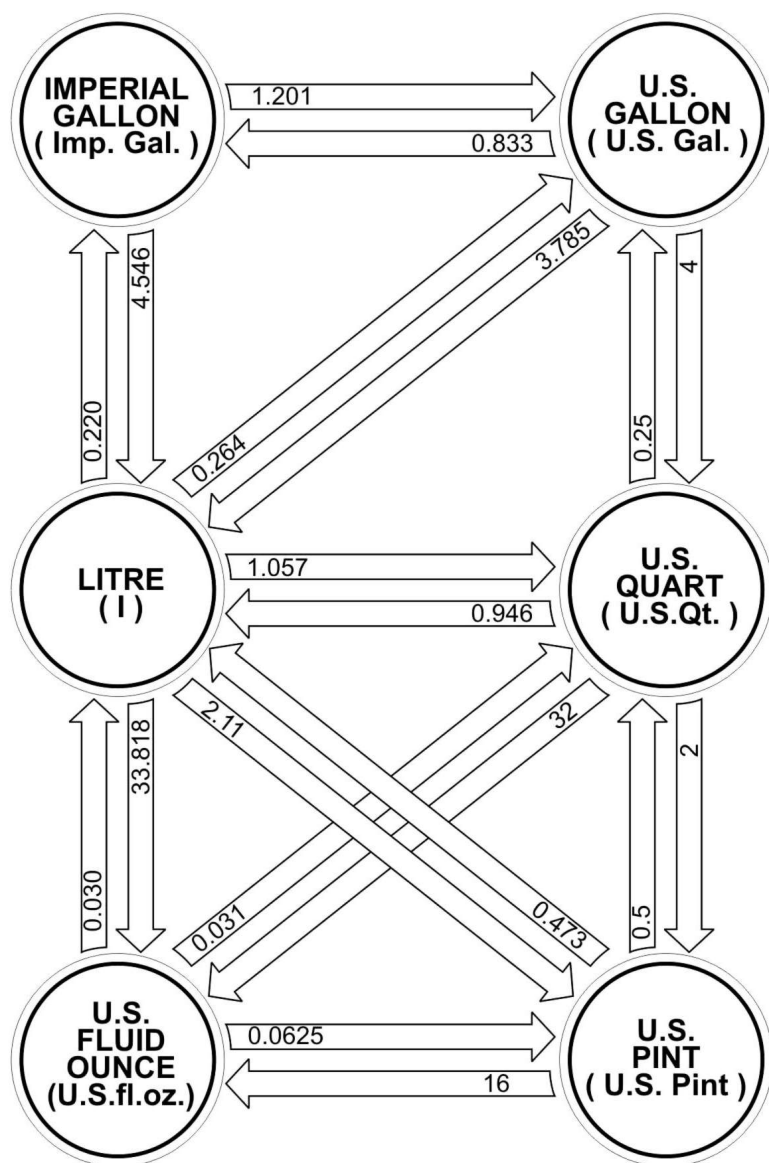
ICN-39-A-001200-G-A0126-00463-A-01-1



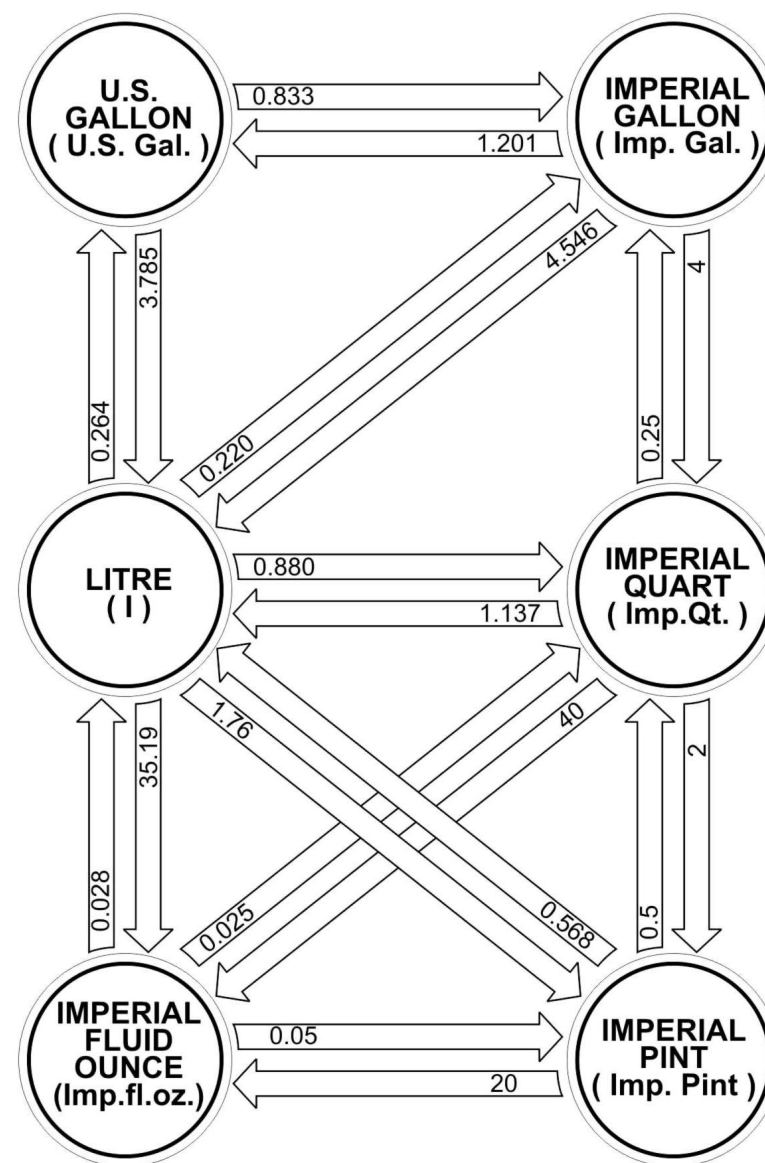
PRESSURE


 The gravity acceleration is referred to 9.80665 m/sec²

TORQUE

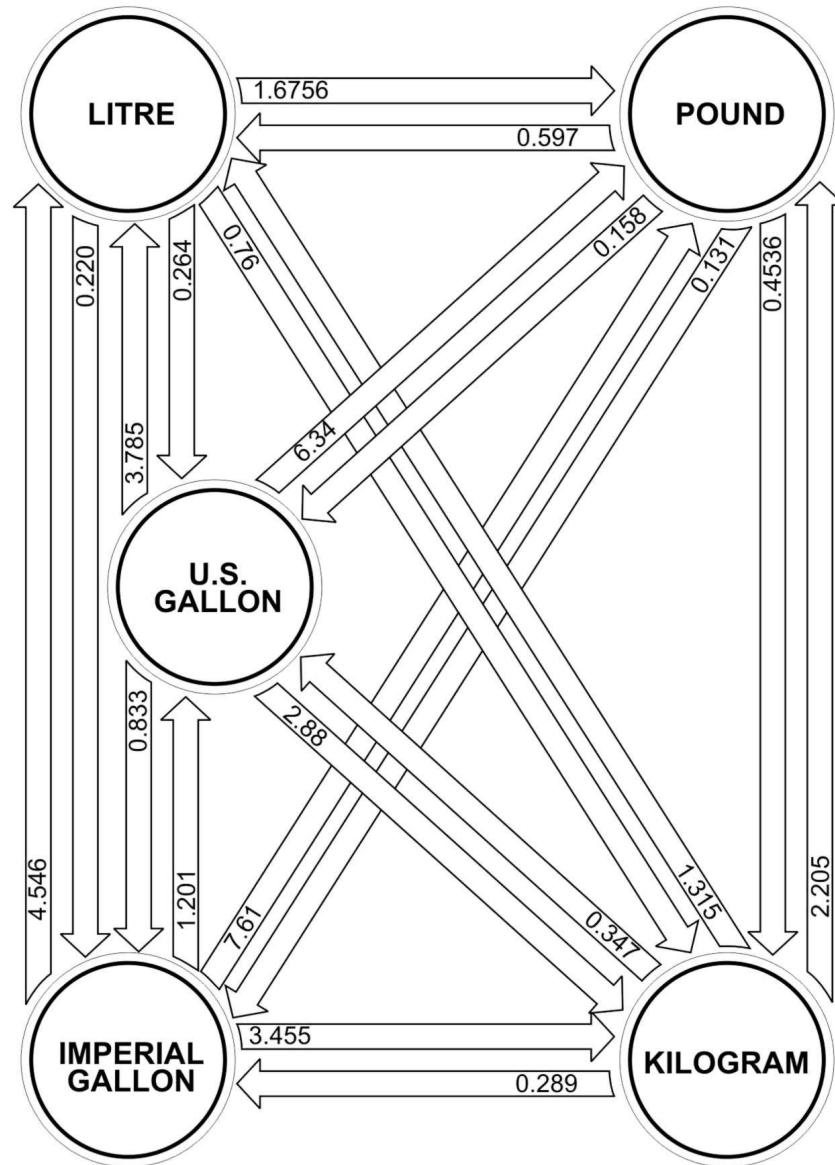


VOLUME (U.S.)

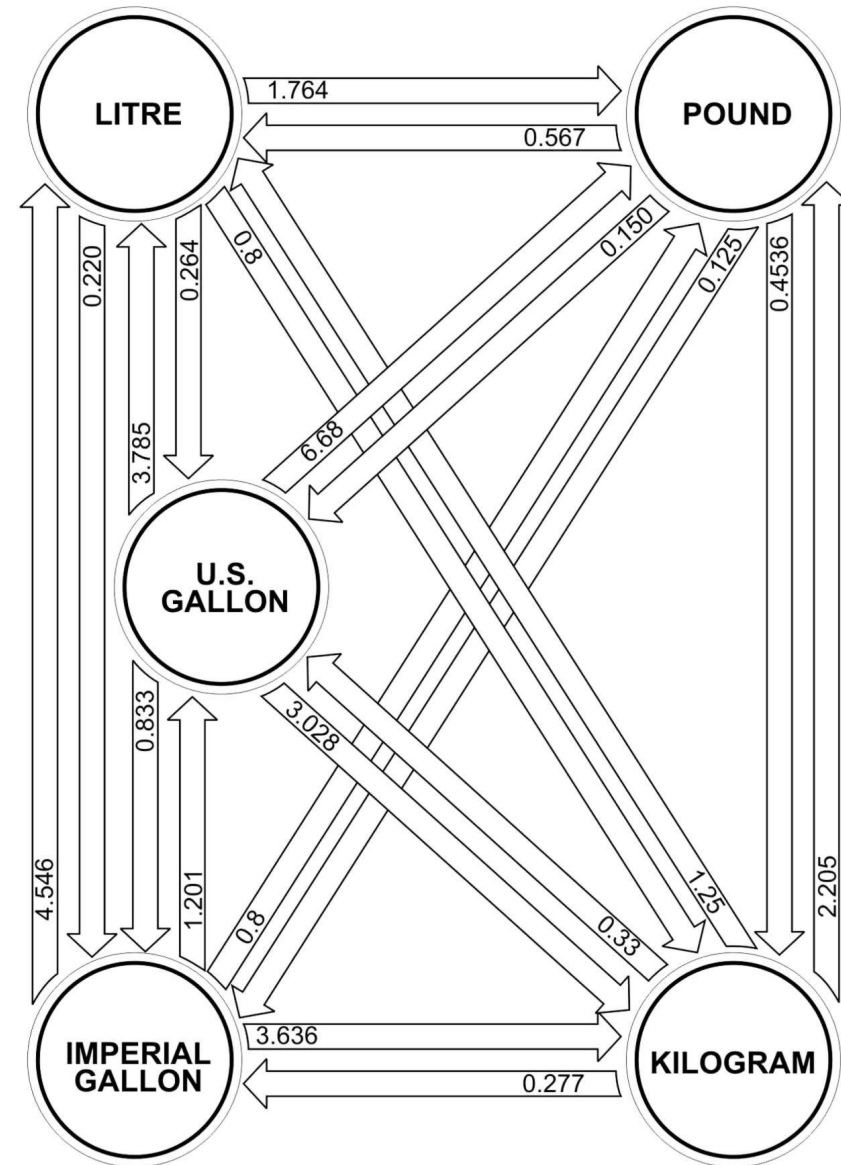


VOLUME (IMP.)

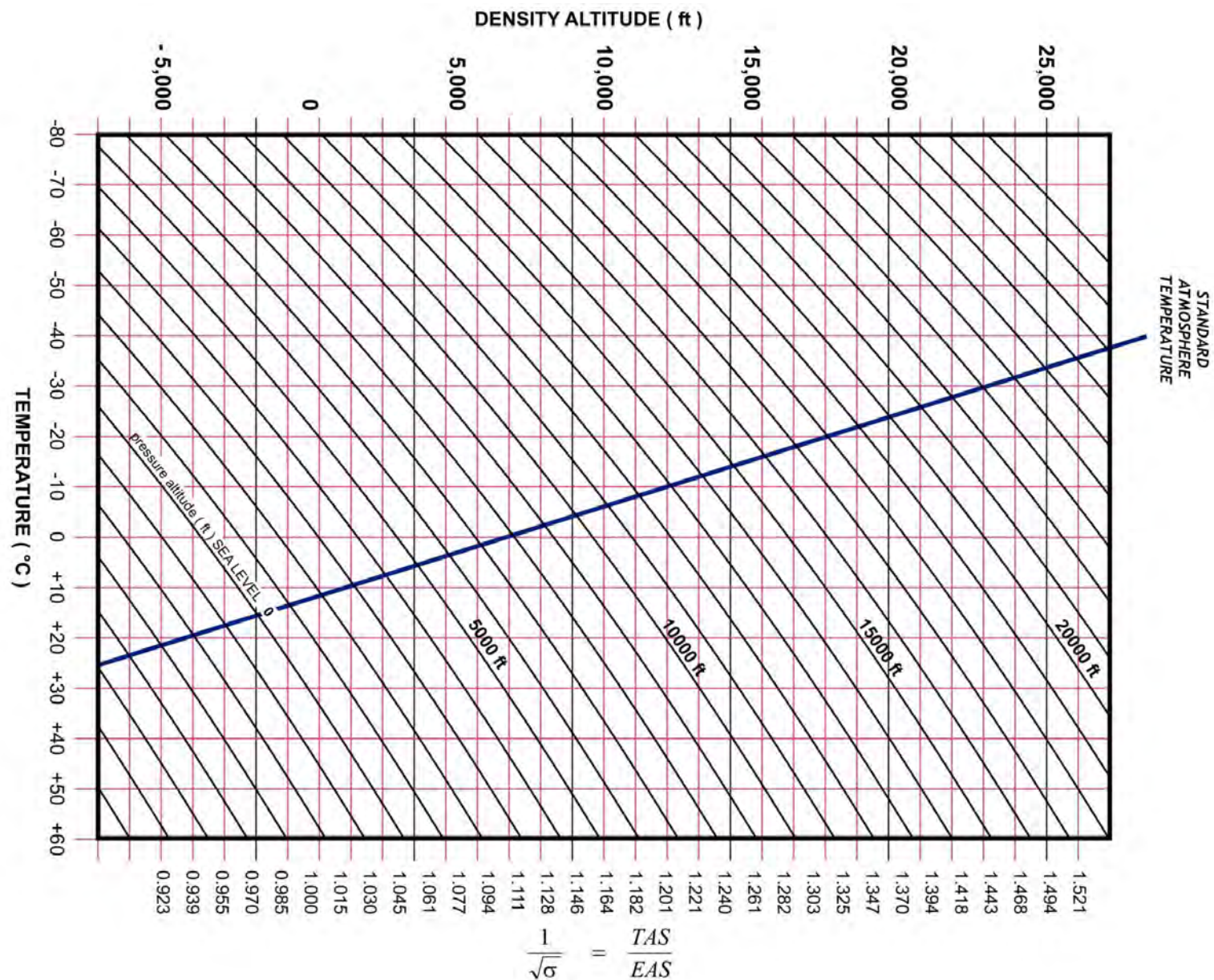
ICN-39-A-001200-G-A0126-00465-A-01-1



JET "B" AND JP 4 FUEL



JET "A1", JP5 AND JP8 FUEL



DENSITY/ALTITUDE CONVERSION TABLE

ICN-39-A-001200-G-A0126-00467-A-01-1

SECTION 20

HELICOPTER SAFE FOR

MAINTENANCE

MAINTENANCE INFORMATIONNOTE

Refer to the following data modules:

- DMC 39-A-00-20-00-00A-120A-A

Helicopter safety – Make the helicopter safe for maintenance

- DMC 39-A-10-11-00-00A-000A-A

Helicopter – Parking in normal conditions – General

- DMC 39-A-12-41-00-00A-510A-A

External electrical power - Disconnect procedures

In order to prepare the helicopter for a safe maintenance condition, the following steps must be achieved:

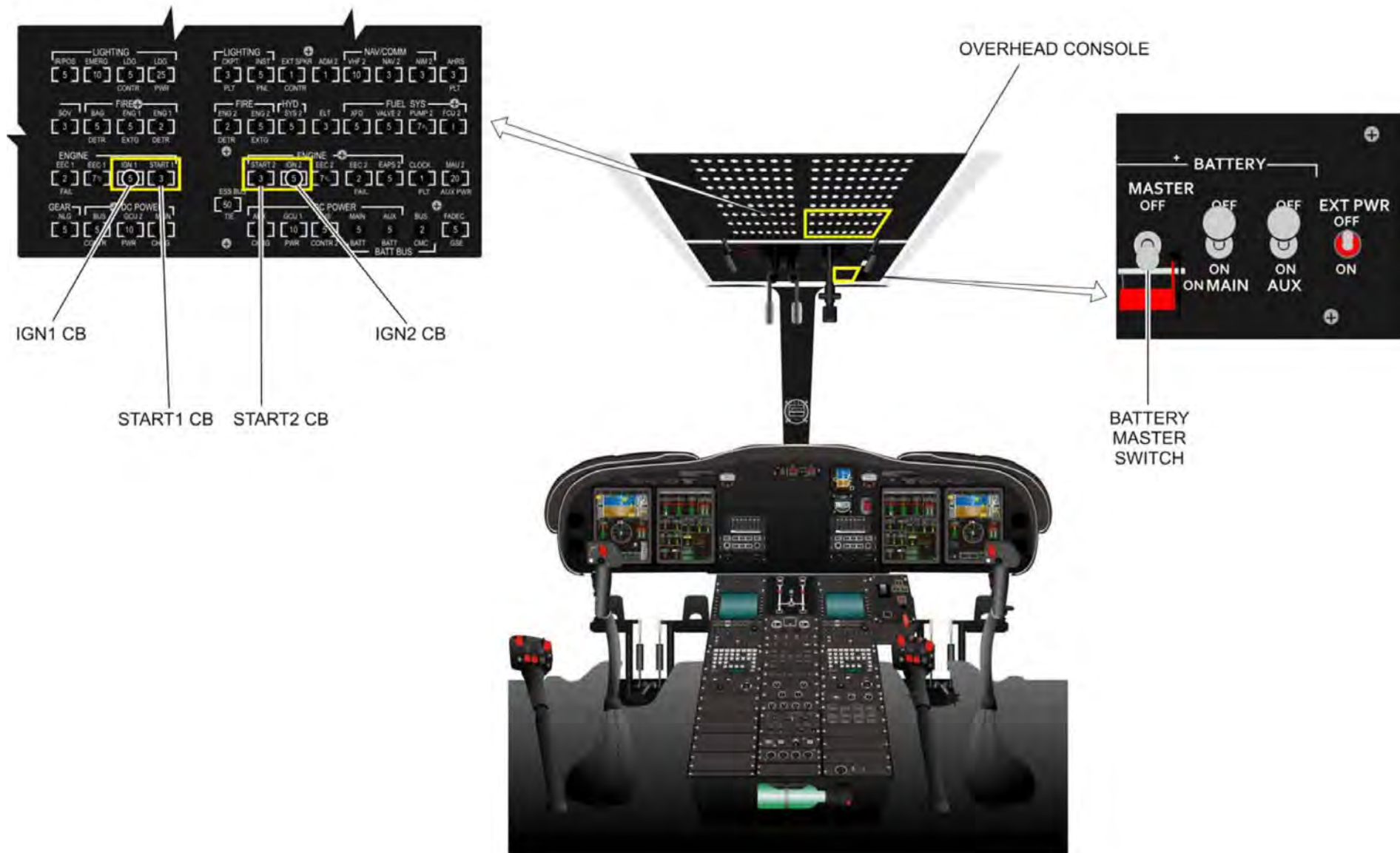
- The helicopter must be properly parked.
- Connect the bonding cable to an earth point and to the ground receptacle on the right side of the helicopter fuselage.
- Make sure that the external power is disconnected and the BATTERY MASTER switch is set to OFF.
- Open and tag the following circuit breakers under ENGINE system on the overhead console:
 - ENGINE - IGN 1
 - ENGINE - IGN 2
 - ENGINE - START 1
 - ENGINE - START 2
- Disconnect the quick-disconnect plug from the main and auxiliary batteries.

NOTE

Remember auxiliary battery must be plugged before disconnecting electrical power and must remain plugged in for at least five minutes after switching off electrical power (either batteries or external power) to allow proper CMC (Central Maintenance Computer) shutdown.

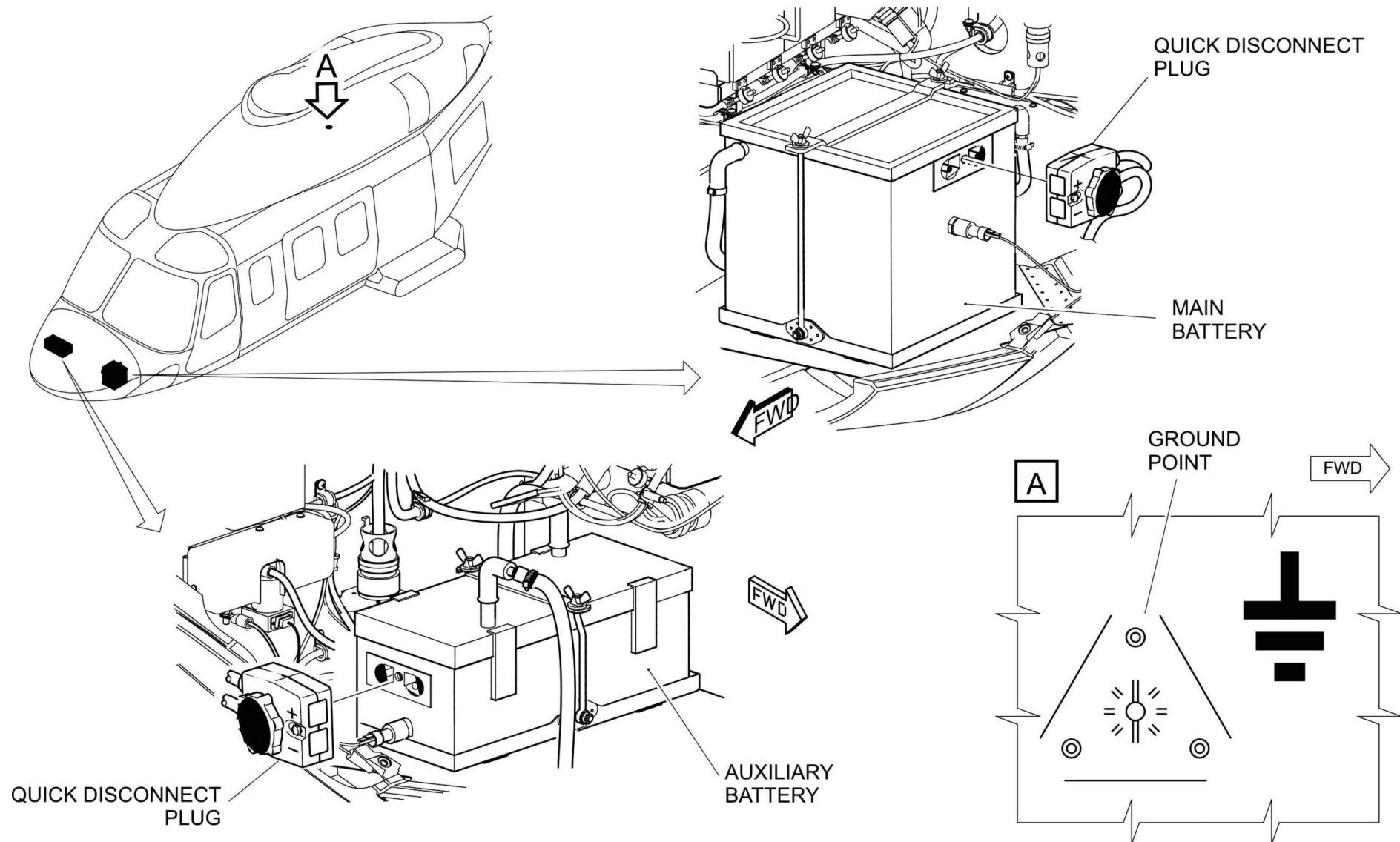
SAFETY PRECAUTIONS

- You must connect the bonding cable to the earth (ground) point before you connect it to the helicopter. If you do not obey this instruction you can cause an injury to persons and/or damage to the equipment.



ICN-39-A-002000-G-A0126-02879-A-01-1

INSTRUMENT AND INTERSEAT



ICN-39-A-002000-G-A0126-00469-A-01-1

BATTERIES DISCONNECTION

SECTION 40

TECHNICAL PUBLICATIONS

GENERAL

The flight and maintenance operations must be carried out according to the officially issued documents which include:

- The Interactive Electronic Technical Publication (IETP) which includes the following manuals:
 - Aircraft Corrosion Control Publication (ACCP)
 - Aircraft Fault Isolation Publication (AFIP)
 - Aircraft Material Data Information (AMDI)
 - Aircraft Maintenance Publication (AMP)
 - Aircraft Maintenance Planning Information (AMPI)
 - Aircraft Structural Repair Publication (ASRP)
 - Aircraft Wiring Diagram Manual (AWDP)
 - Component Repair and Overhaul Manual (CR&OP)
 - Illustrated Parts Data Publication (IPD)
 - Illustrated Tools and Equipment Publication (ITEP)
 - List of Applicable Publications (LOAP)
 - Master Minimum Equipment List (MMEL)
 - NVG Compatibility Reference Handbooks (NVG-CRH)
 - Icing Compatibility Reference Handbook (ICING-CRH)
- The Rotorcraft Flight Manual (RFM)
It provides all the information required to operate the helicopter in normal and emergency conditions.
It contains the following sections:
 - 1 - Airworthiness Limitations
 - 2 - Normal Procedures
 - 3 - Emergency and Malfunction Procedures
 - 4 - Performance Data
 - 5 - Optional Equipment Supplement
 - 6 - Weight and Balance
 - 7 - Systems Description

- 8 - Handling, Servicing and Maintenance
- 9 - Supplemental Performance Information

In addition a Quick Reference Handbook (QRH) is also available as a checklist, the QRH is mandatory for single-pilot operations (see RFM, Section 5, Supplement 22 - IFR Single Pilot).



IETP

Interactive Electronic Technical Publication

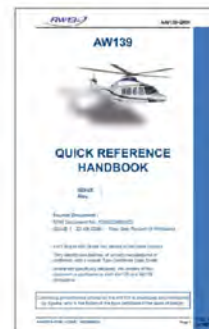
- Maintenance Manuals (all)
- Maintenance Planning Information
- Master MEL



RFM

Rotor Flight Manual

- Limitations
- Normal and Emergency Procedures
- Performance Data
- Weight and Balance Data
- Optional Equipment and System Description
- Handling, Servicing and Maintenance Data



QRH

Quick Reference Handbook

- Limitations - Normal Procedures- Performances
- Emergency and Malfunction Procedures

ICN-39-A-004000-G-A0126-00016-A-03-1

- The Bollettino Tecnico (BT)

The Bollettino Tecnico is a Publication Issued by AgustaWestland (AW139 Type Certificate holder).

The Bollettino Tecnico introduces modifications and / or additional inspections in order to correct defects discovered after the certification of the product or to improve its technical characteristics.

AgustaWestland assigns a level of urgency to the bulletins through a synthetic judgment:

- Alert Mandatory
- Mandatory
- Company Mandatory
- Optional

Alert Mandatory: when the compliance is required within 25 flight hours/3 months or less.

Mandatory: from events that may affect the SAFETY of the Helicopter (Possibly associated with an EASA AD)

Company Mandatory: not endorsed by an EASA AD, Not Affecting the safety, but improving the Helicopter reliability;

Optional: non Safety related (helicopter customization/product improvement).

The latest version of the Bollettini Tecnici can be found in the “Leonardo” web portal: <https://leonardo.agustawestland.com/>

ALERT

 **AgustaWestland**
A Leonardo Company

BOLLETTINO TECNICO

MANDATORY

ALERT

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BOLLETTINO TECNICO

MANDATORY

 **AgustaWestland**
A Leonardo Company

BOLLETTINO TECNICO

COMPANY MANDATORY

 **AgustaWestland**
A Leonardo Company

BOLLETTINO TECNICO

OPTIONAL

ICN-39-A-004000-G-A0126-00001-A-02-1

INTERACTIVE ELECTRONIC TECHNICAL PUBLICATION (IETP)

The IETP is distributed on DVD-ROM and includes all the technical publications containing the information required to properly perform all maintenance tasks to permit the Release to Service of the AW139 helicopter, including the Master Minimum Equipment List (MMEL).

A link to "Leonardo" section of the AgustaWestland website is also included to provide access to the latest Technical Publication (Bollettini Tecnici, Information Letters and etc.) - <https://leonardo.agustawestland.com/>.

The primary media for the airworthiness aspects are either the paper collection or the Agusta website <http://www.agustawestland.com/content/technical-support-services>.

The publications are written in "Simplified Technical English" and obey the instructions given in specification ASD-STE100 (Issue 3, 15 January 2005). The Aerospace and Defence (ASD) Industries Association of Europe prepared the specification.

AIRCRAFT CORROSION CONTROL PUBLICATION

This publication gives you all the data necessary for the corrosion control of the Agusta Westland AW139 helicopter.

AIRCRAFT FAULT ISOLATION PUBLICATION

This publication gives the data that help the maintenance personnel to know and find the system fault indications of the AgustaWestland AW139 helicopter.

The troubleshooting guide is organized in chapters to easily find the information relevant to the different systems and the faults are divided into Detected Faults registered by the Central Maintenance Computer (CMC) and Observed Faults observed by the crew.

AIRCRAFT MATERIAL DATA INFORMATION

This publication is the Material Data Information (MDI) publication of the AgustaWestland AW139 helicopter.

It includes all the data that are necessary for the identification, requisition, storage and utilization of the consumable materials recommended for the helicopter.

AIRCRAFT MAINTENANCE PUBLICATION

This publication gives you all the data necessary to do the maintenance of the AgustaWestland AW139 helicopter.

It provides all the information required to perform all the maintenance procedures used to preserve the airworthiness and flight characteristic of the helicopter.

AIRCRAFT MAINTENANCE PLANNING INFORMATION

This publication gives you all the data necessary for the maintenance planning of the AgustaWestland AW139 helicopter.

The maintenance planning information includes the chapters that follow applicable to the helicopter maintenance information:

- Chapter 04 - Airworthiness limitations
- Chapter 05 - Schedules/unscheduled maintenance requirements

NOTE

The Air vehicle Maintenance Planning Information set (AMPI) are given within the IETP for reference only and are updated at the date of issue of the IETP.

AIRCRAFT STRUCTURAL REPAIR PUBLICATION

It provides all the information required for the identification of the structure damages and the repair associated.

AIRCRAFT WIRING DIAGRAM PUBLICATION

It provides all the electrical/electronic wiring diagrams required for maintenance tasks.

AIRCRAFT COMPONENT REPAIR AND OVERHAUL PUBLICATION

It provides all the information required to the disassembly, inspection, repair and reassembly of the major helicopter components when applicable.

AIRCRAFT ILLUSTRATED PARTS DATA PUBLICATION

It provides the illustration and identification data about the replaceable parts of the air vehicle for which the maintenance procedures has been provided.

AIRCRAFT ILLUSTRATED TOOLS AND EQUIPMENT PUBLICATION

It provides all the characteristics and the illustration of all the special tools and equipment, including test equipment recommended for the maintenance of the air vehicle.

LIST OF APPLICABLE PUBLICATIONS

This publication is the List of Applicable Publications (LOAP) of the AgustaWestland AW139 helicopter.

Use the LOAP for the selection of the publications necessary:

- To operate with the helicopter
- To do the maintenance and the overhaul on the helicopter and its airborne equipment.

The LOAP contains:

- The list of helicopter publications
- The list of engine publications
- The list of equipment publications

MASTER MINIMUM EQUIPMENT LIST

The MMEL includes those items of equipment related to airworthiness and operating requirements and other items of equipment which the Authority finds may be inoperative and yet maintain an acceptable level of safety by

appropriate conditions and limitations; it does not contain obviously required items such as main rotor, tail rotor and transmission.

All equipment related to the airworthiness and the operating requirements of the aircraft not listed on the MMEL must be operative.

The MMEL is the basis for development of individual operator's MELs which take into consideration the operator's particular aircraft equipment configuration and operational conditions. An operator's MEL may differ in format from the MMEL, but cannot be less restrictive than the MMEL.

The individual operator's MEL, when approved permits operation of the aircraft with inoperative equipment.

Wherever possible, multiple inoperative items have been taken into account in this MMEL. However, it is unlikely that all possible combinations of this nature have been accounted for. Therefore, when operating with multiple inoperative items, the inter-relationships between those items and the effect on aircraft operation and crew workload must be considered.

NOTE

The Master Minimum Equipment Lists are updated at the date of issue of the IETP CD/DVD-ROM.

Always check the Leonardo section on Agusta website for any possible Changes issued in the meantime. <https://leonardo.agustawestland.com/>.

NVG COMPATIBILITY REFERENCE HANDBOOK

The scope of the NVG-CRH is to keep trace of AW139 Helicopter NVG configuration.

In particular the document:

- provides the means to determine if a given AW139 configuration is compatible with NVG operations;
- provides information about how to manage the impact on NVG compatibility of deviations and non compliances.

ICING COMPATIBILITY REFERENCE HANDBOOK

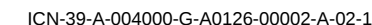
The scope of the ICING-CRH is:

- to keep trace of the AW139 helicopter configuration cleared for flight into known icing conditions;
- to provide the means to determine if a given AW139 configuration is cleared for flight into known icing conditions.

INFORMATION LETTER

Are issued to provide the operator with “useful information” such as: Maintenance Manual clarifications; suggestions for better operating, maintenance or inspection procedures; changes to component Time Between Overhaul (T.B.O.) or Time Between Inspection (T.B.I).

With the exception of T.B.O. and T.B.I. requirements, compliance with Information Letters is at the discretion of the individual operator.



The Technical Publications are arranged in Chapters and Sections.

Each Chapter is composed of Data Modules which provide the required information to perform maintenance on the helicopter.

The data modules are identified by the following code:

DATA MODULE CODE (DMC)						
	1	2	3	4	5	6
DMC	39	A	XX-XX-XX	YXA	XXXA	A
Eg: 39-A-29-11-01-00A-720A-A						
	39	A	29-11-01	00	720	A

1 - MODEL IDENTIFICATON CODE

The model identification code for the AW139 is 39.

2 - SYSTEM DIFFERENT CODE

The system difference code is a letter (letters I and O are not used). This Letter identifies two or more sub-system that can be installed as alternative items because they do the same function (eg: VHF systems by different suppliers).

3 - STANDARD NUMBERING SYSTEM (SNS) CODE

The SNS code includes three pairs of digits which show:

- The system (eg: 29, hydraulic power)
- The sub-system and sub-subsystem (eg: 11, Number 1 main-hydraulic system)

NOTE

When the sub-subsystem code is zero, the two digits show all of the sub-system.

- The component (eg: 01, Number 1 power control module)

4 - DISASSEMBLY CODE AND DISASSEMBLY CODE VARIANT

DISASSEMBLY CODE

The disassembly code is a two-digit code or three-digit code if variant. The disassembly code shows the breakdown of a component, as follow:

- 00 – Data module for all of the helicopter, system, sub-system or component.
- 01 – Data module for the first assembly that you remove from the component.
- 02 – Data module for the second assembly that you remove from the component.

Code 03 and the subsequent codes refer to the third, fourth, etc assembly that you remove from the component.

The disassembly code also identifies the data modules in sequence.

DISASSEMBLY CODE VARIANT

The disassembly code variant is a letter (letter I and O are not used) which identifies alternative items.

These items are different, but the difference is too small to cause a change in the system difference code.

5 - INFORMATION CODE AND INFORMATION CODE VARIANT

INFORMATION CODE

The information code is a three-digit code.

The information code identifies the types of information you can find in the data module.

000 is used for the systems, for which the SNS identifies the type of information in the data module (eg: 05-10 is "time limits", you must write 000).

Example of primary codes used in the publication set for the helicopter are written below:

Code Definition

- 040..... Description of how it is made and its function
- 050..... Diagrams and lists
- 200..... Servicing
- 500..... Disconnect, remove and disassemble procedures
- 510..... Disconnect procedures
- 520..... Remove procedures
- 530..... Disassemble procedures
- 550..... Unload software procedures
- 600..... Repairs and locally make procedures and data
- 660..... Structure repair procedures and data
- 700..... Assemble, install and connect procedures
- 710..... Assemble procedures
- 720..... Install procedures
- 800..... Storage procedures and data
- 810..... Preservation procedures

INFORMATION CODE VARIANT

The information code variant is a letter (letters I and O are not used).

The information code variant is used for different data modules that are applicable to the same component and type of operation.

6 - ITEM LOCATION CODE

The item location code is a letter which shows where you must do the maintenance task.

In this publication, you can find these item location codes:

- A on the helicopter
- B on the removed assembly/component
- D applicable to all the locations.

The letter K is used as the item location code for the identification of the data modules applicable to:

- Optional installations
- Optional systems
- Optional equipment.

Each page of a data module includes these data:

- The technical publication code
- The data module code
- The page number
- The page date
- The effectivity data.

NOTE

Before to start a procedure make sure that it is applicable to the helicopter effectivity.

LIST OF EFFECTIVE CODES

The list of effectivity codes is in Section 00-00 General information and description of the Publication.

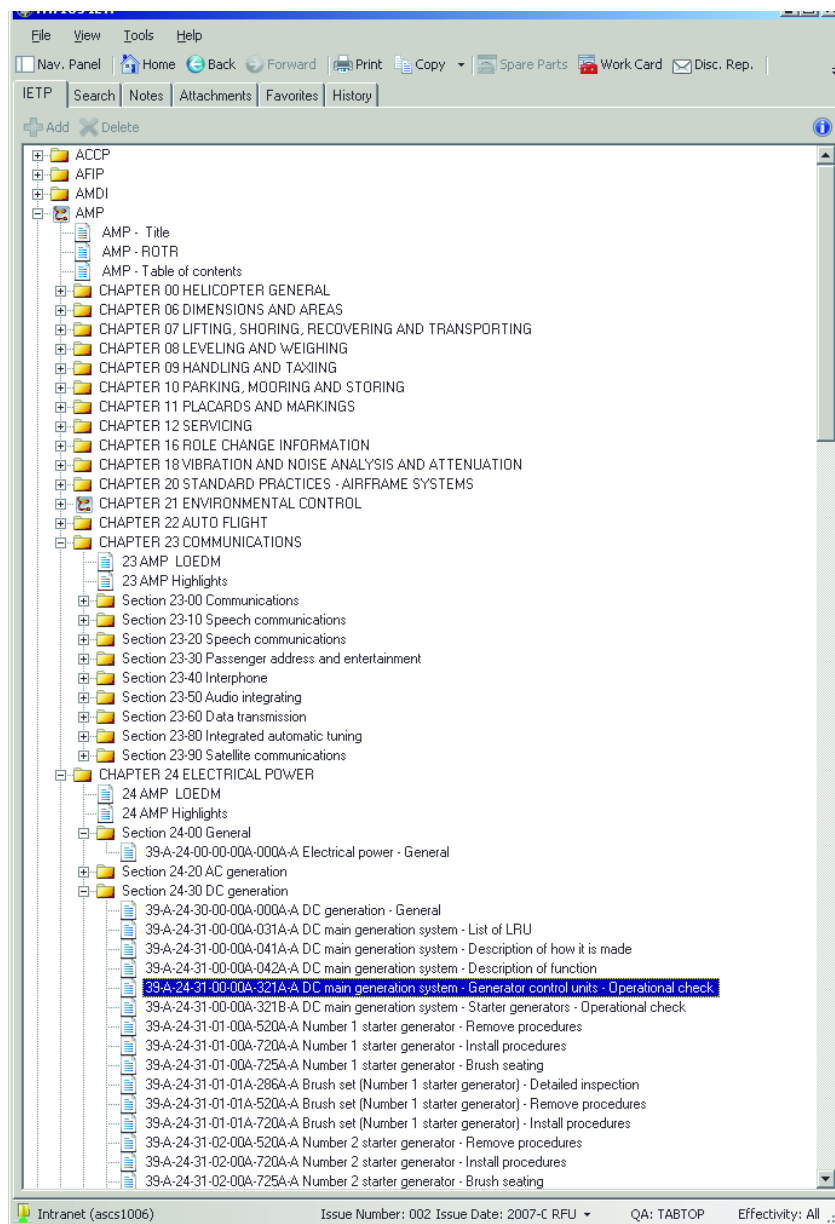
Effectivity codes are alphanumeric codes included in the publication to shown service bulletins, modification and configuration differences.

The effective codes are shown:

- In the effectivity space on each page of the data modules
- In the effectivity column of the list of effective pages

- In the effectivity column of the table of contents page
- In the effectivity column of the list of effective data modules page of each temporary revision.

Small effectivity differences in illustrations are shown by notes.



AIRCRAFT CORROSION CONTROL PUBLICATION

- Zones 1 are areas with high concentration of salt (seasides, salted deserts and lakes).

GENERAL DESCRIPTION

This publication gives you all the data necessary for the corrosion control of the AgustaWestland AW139 helicopter.

A reliable corrosion control program must take into consideration factors such as geographical location and specific operational environments, i.e. marine atmospheres, industrial air pollution, agricultural sprays, corrosive soils, abrasive dust and extreme temperatures.

The problem of corrosion is complex and subtle changes in the environment can drastically change the corrosion resistance of a metal and/or breakdown resistance of the protective finish system. Therefore, corrosion control must be handled on a day-to-day basis. A specific program must be established which will assure that all areas of the helicopter are checked on a periodic schedule. In addition, particular emphasis should be placed on those areas which are known to receive more frequent damage to protective coatings.

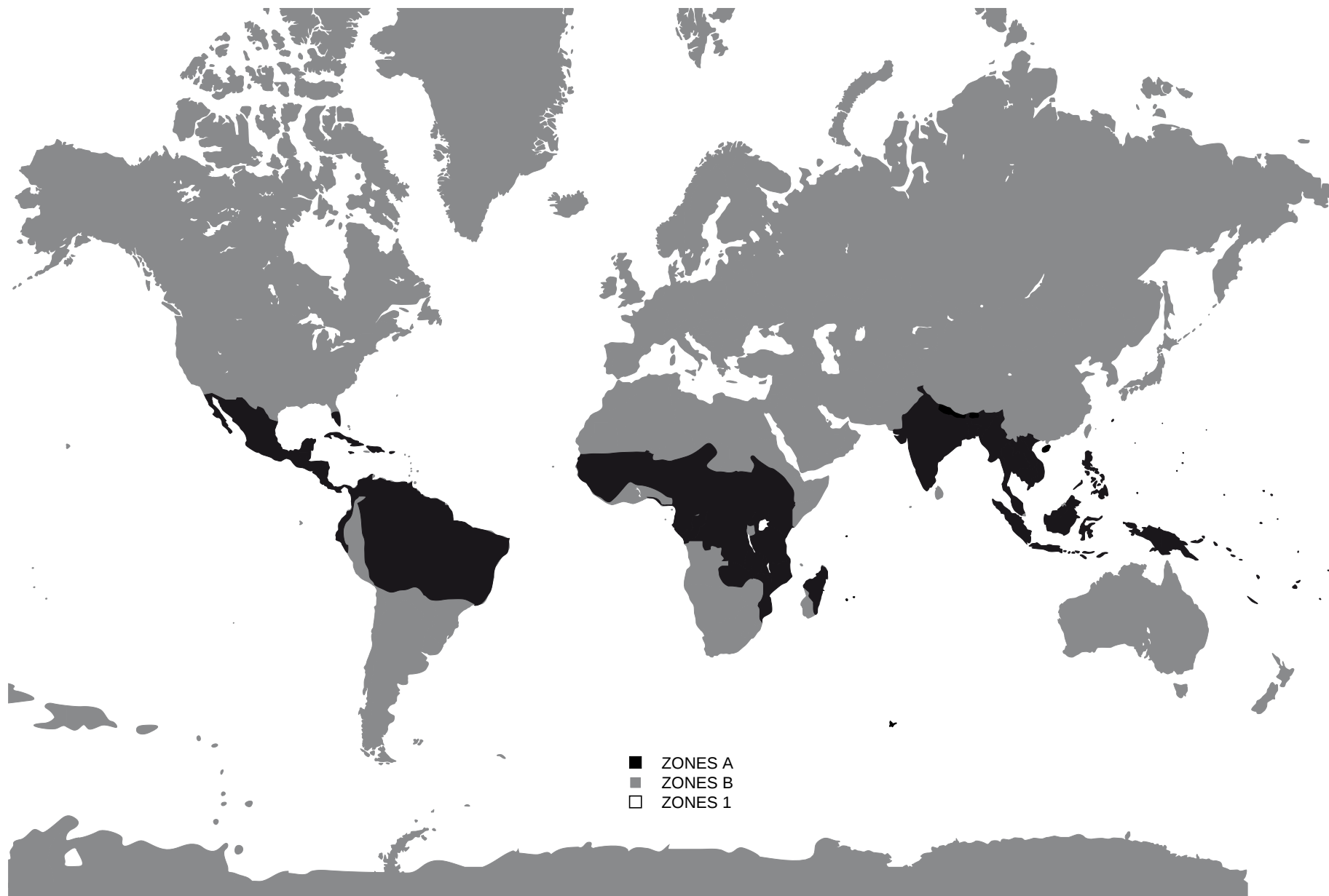
An effective corrosion control program must include:

- Frequent and proper cleaning
- Application and timely reapplication of corrosion preventive compound and water displacing agents
- Early detection and repair of damaged protective coatings
- Neutralization of active corrosion, repair of corrosion damage and reapplication of protective finishes
- Replacement of components which are damaged beyond allowable limits
- Feedback of information for corrective action.

ENVIRONMENTAL CONDITIONS AND GEOGRAPHICAL LOCATION

The world map with highlighted two different climatic zone (Zones A and B) and zones of high concentration of salt (Zones 1):

- Zones A are areas with hot and wet climate and high humidity concentrations
- Zones B are all remaining areas



ICN-39-A-004000-G-A0126-00017-A-01-1

INSPECTION PROGRAMS

Three different inspection programs was developed:

- Severe
- Mild
- Soft.

SEVERE INSPECTION PROGRAM

The severe inspection program applies when the helicopter operates:

- In Zones A and in areas with high concentration of salt (Zones A plus Zones 1)
- In zones B and in areas with high concentration of salt (Zones B plus Zones 1).

Do the corrosion damage inspections at intervals of:

- 25 flight hours or 7 days (whichever occurs first)
- 150 flight hours or 3 months (whichever occurs first).

MILD INSPECTION PROGRAM

The mild inspection program applies when the helicopter operates in Zones A and in areas with standard environment.

Do the corrosion damage inspections at intervals of:

- 150 flight hours or 3 months (whichever occurs first)
- 300 flight hours or 6 months (whichever occurs first).

SOFT INSPECTION PROGRAM

The soft inspection program applies when the helicopter operates in Zones B and in areas with standard environment.

Do the corrosion damage inspection at intervals of:

- 300 flight hours or 6 months (whichever occurs first)
- 600 flight hours or 1 year (whichever occurs first).

CORROSION DETECTION

Adequate inspection for corrosion cannot be accomplished by random, isolated examinations. A well planned inspection guide and checklist are necessary to assure that no susceptible area is overlooked. Components should be thoroughly examined for signs of corrosion at each routine inspection and additional corrosion inspections should be conducted on a schedule which is consistent with the operational environment.

When corrosion is found, a correct evaluation of probable damage is necessary in order that appropriate corrective action may be taken. The function of the part concerned and the location of the corrosion on the part will determine the action required.

The limits for damage assessment are normally found in the Aircraft Structural repair publication ([39-A-ASRP-00-X](#)), for those structural parts that do not have limits specified in the Structural Repair Publication the limits can be found in the Section 00-10 of the ACCP.

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CHAPTER 00 CORROSION CONTROL PUBLICATION

00 ACCP LOEDM

00 ACCP Highlights

Section 00-00 Corrosion control publication

39-A-00-00-00-00A-011M-E Corrosion control publication - List of effectivity codes

39-A-00-00-00-00A-018M-E Corrosion control publication - Introduction

Section 00-10 Corrosion control

39-A-00-10-00-00A-000A-E Corrosion control - General

39-A-00-10-01-00A-000A-E Corrosion control program - General

39-A-00-10-02-00A-000A-E Types of corrosion - General

39-A-00-10-03-00A-000A-E Corrosion detection - General

39-A-00-10-04-00A-000A-E Classification of corrosion damage - General

Section 00-50 Material data

39-A-00-50-00-00A-074A-E Material data - Dangerous materials

CHAPTER 20 STANDARD PRACTICES

20 ACCP LOEDM

20 ACCP LOSU

20 ACCP Highlights

Section 20-00 Standard practices

39-A-20-00-00-00A-000A-E Standard practices - General

Section 20-10 Cleaning

39-A-20-10-00-00A-010A-E Cleaning - General data

39-A-20-10-01-00A-251A-E Helicopter interior - Clean with chemical agents

39-A-20-10-02-00A-258A-E Exposed chromium-plated surfaces - Other procedures to clean

Section 20-20 Paint removal for corrosion control

39-A-20-20-00-00A-010A-E Paint removal for corrosion control - General data

Section 20-30 Requirements corrosion damage inspection

39-A-20-30-00-00A-010A-E Corrosion damage inspection requirements - General data

39-A-20-30-01-00A-000A-E Basic inspection - General

39-A-20-30-02-00A-000A-E Supplementary inspection - General

Section 20-40 Corrosion removal

39-A-20-40-00-00A-010A-E Corrosion removal - General data

39-A-20-40-01-00A-693A-E Aluminum surfaces - Sheet metal parts and extrusion - Corrosion removal

39-A-20-40-02-00A-693A-E Aluminum surfaces - Machined parts, forgings and casting - Corrosion removal

39-A-20-40-03-00A-693A-E Steel surface - Plated and/or painted surfaces - Corrosion removal

39-A-20-40-04-00A-693A-E Magnesium surfaces - Corrosion removal

Section 20-50 Surface treatment

39-A-20-50-00-00A-010A-E Surface treatment - General data

Section 20-60 Corrosion prevention finish

39-A-20-60-01-00A-666A-E Corrosion protection on attaching parts - Repair procedure

Section 20-70 Corrosion prevention sealant systems

39-A-20-70-01-00A-010A-E Corrosion prevention sealant systems - Electrical connectors - General

39-A-20-70-01-00A-695A-E Electrical connectors - Corrosion protection

39-A-20-70-01-00A-695B-E Electrical connectors - Corrosion protection

39-A-20-70-01-00A-695C-E Electrical connectors - Corrosion protection

39-A-20-70-02-00A-010A-E Corrosion prevention sealant systems - Fuselage structure - General

CHAPTER 53 FUSELAGE

53 ACCP LOEDM

Section 53-00 Fuselage

39-A-53-00-00-00A-000A-E Fuselage - General

Section 53-30 Aft section

39-A-53-30-00-00A-041A-E Aft section - Description of how it is made

Procedure

Note 1

To know the meaning of the effectivity code (or codes) shown in this data module, refer to data module [39-A-00-00-00-00A-011A-D](#) of the Maintenance Publication ([39-A-AMP-00-X](#)).

Note 2

It is possible to change the inspection interval to obey the environmental conditions and geographical location of the helicopter. Refer to data module [39-A-00-10-01-00A-000A-E](#).

1

External surfaces of fuselage and horizontal stabilizer.

1.1

Examine all skin panels, access panels and access doors for damage to finish and corrosion. This is very important at seams, edges and riveted or spot-welded joints.

1.2

Examine all rivets for looseness and corrosion around the heads.

1.3

Examine all seams between skin panels for damage to sealant bead.

2

Engine cowlings.

Note

The engine cowling include:

- The forward sliding fairing
- The two engine access doors
- The top forward and aft cowl
- The left and right aft cowl.

Refer to data module [39-A-71-11-00-00A-041A-A](#) of the Maintenance Publication ([39-A-AMP-00-X](#)) for the identification of the engine cowlings.

2.1

Examine all latches, brackets and hinges for corrosion. This is very important on the heads of rivets and other attaching parts.

2.2

Open all engine cowlings.

2.3

Examine the areas and the components you can see after [Step 2.2](#) for signs of corrosion and water entrapments.

3

Access doors

Note

Refer to data module [39-A-06-41-00-00A-010A-A](#) of the Maintenance Publication ([39-A-AMP-00-X](#)) for the identification of the access doors.

3.1

Examine all latches, brackets and hinges for corrosion. This is very important on the heads of rivets and other attaching parts.

3.2

Open all access doors.

3.3

Examine the areas and the components you can see after [Step 3.2](#) for signs of corrosion and water entrapments.

3.4

Do a check of the sealing conditions of the cockpit, cabin and baggage compartment doors.

4

Access panels.

Note

Refer to data module [39-A-06-41-00-00A-010A-A](#) of the Maintenance Publication ([39-A-AMP-00-X](#)) for the data module codes of the applicable remove procedures.

ACCP - 39-A-20-30-01-00A-000A-E Basic inspection - General

Issue Date: 2012-07-12

RFU

QA: TABTOP

Effectivity: All

ICN-39-A-004000-G-A0126-00004-A-01-1

39-A-00-40-00-00A-046A-T

FOR TRAINING PURPOSE ONLY

2016-11-11 Page: 17

AIRCRAFT FAULT ISOLATION PUBLICATION

GENERAL DESCRIPTION

This publication gives the data that help the maintenance personnel to know and find the system fault indications of the AgustaWestland AW139 helicopter.

All the fault isolation data are included in data modules identified by a Data Module Code.

A fault is an incorrect operation or a malfunction of a system or equipment.

A fault can be found by pilots or ground crew, in this case the fault is called Observed Fault.

The Helicopter Monitoring System is able to automatically detect faults.

The fault is called Detected Fault. When a failure is found, the central maintenance computer gives a maintenance message. This message is automatically kept in the non-volatile memory.

Detected Faults are associated to a Fault Code and a Maintenance Message. A maintenance message is a message given by the central maintenance computer. The maintenance message helps you to find the corrective action.

In the AFIP faults are identified by Fault Codes, and for each fault code there is a Fault Isolation Procedure.

The fault isolation procedure is the procedure related to the identification of an item that does not operate correctly in the system. Also it is the procedure that shows the actions necessary to make the system serviceable again. "Fault Isolation" and "Troubleshooting" are synonyms.

The fault isolation procedures have two primary parts:

- The Fault Reporting (FR) procedures
- The Fault Isolation (FI) procedures.

The fault reporting procedures include the items that follow for each system:

- A detected fault list data module
- An observed fault list data module.

In the fault lists, a corrective action or a fault isolation procedure is shown for each fault code.

In the Chapter 00 Helicopter General Section 00-00 is possible to find the full lists of the Fault Codes and the Maintenance Messages.

In each chapter in the Section 00-00 is possible to find the full list of all the Observed Faults and/or Detected Faults for the chapter.

For each Chapter the Fault Isolation procedures are contained in Data Modules grouped in Sections for the different Systems and Subsystems

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00 AFIP Highlights

Section 00-00 Helicopter general

39-A-00-00-00-00A-011D-D Fault isolation publication - List of effectivity codes

39-A-00-00-00-00A-017D-D Fault isolation publication - List of abbreviations

39-A-00-00-00-00A-018D-D Fault isolation publication - Introduction

39-A-00-00-00-00A-430A-A Resistance and continuity checks during fault isolation procedures -

39-A-00-00-00-00A-441A-A Helicopter general - Fault code index

39-A-00-00-00-00A-442A-A Helicopter general - Maintenance message index

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18 AFIP LOEDM

18 AFIP Highlights

Section 18-10 Vibration analysis

CHAPTER 21 ENVIRONMENTAL CONTROL

21 AFIP Highlights

21 AFIP LOEDM

Section 21-00 General

39-A-21-00-00-00A-413A-A Environmental control - Fault reporting - Observed fault

Section 21-20 Distribution

Section 21-40 Heating

Section 21-90 Integrated environmental control system

CHAPTER 22 AUTO FLIGHT

22 AFIP LOEDM

22 AFIP Highlights

Section 22-00 Auto flight

39-A-22-00-00-00A-412A-A Automatic flight control system - Fault reporting - Detected fault

Section 22-10 Autopilot

CHAPTER 23 COMMUNICATIONS

23 AFIP LOEDM

23 AFIP Highlights

Section 23-00 Communications

39-A-23-00-00-00A-412A-A Communications - Fault reporting - Detected fault

Section 23-80 Integrated automatic tuning

CHAPTER 24 ELECTRICAL POWER

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24 AFIP Highlights

Section 24-00 Electrical power

39-A-24-00-00-00A-413A-A Electrical power - Fault reporting - Observed fault

Section 24-30 DC generation

CHAPTER 25 EQUIPMENT/FURNISHINGS

25 AFIP LOEDM

25 AFIP Highlights

Section 25-00 Equipment/Furnishings

39-A-25-00-00-00A-413A-A Equipment/furnishings - Fault reporting - Observed fault

Section 25-60 Emergency

Section 25-90 Aerial delivery

CHAPTER 26 FIRE PROTECTION

26 AFIP LOEDM

Section 26-00 Fire protection

Section 26-20 Extinguishing

1

Fault code index

Refer to [Table 2](#)

Table 2 Fault code index

Fault code	Maintenance message / Fault description	Fault isolation reference (DMC)
1812-01A	The TVM analysis shows a possible problem on the input pinion of the left input shaft module. The Condition Indicator (CI) found are: ESA_M6, EAS_IMP, PSA_EIIV, PSA_EIIE.	39-A-18-12-00-00A-421A-K
1812-01B	The TVM analysis shows a possible problem on the input pinion of the left input-shaft module. The Condition Indicator (CI) found are: FSA_GE1, FSA_GE2, ESA_WEA, SIG_STD	39-A-18-12-00-00A-421B-K
1812-01C	The TVM analysis shows a possible problem on the input pinion of the left input-shaft module. The Condition Indicator (CI) found are: FSA_SO1, FSA_SO2	39-A-18-12-00-00A-421C-K
1812-02	The TVM analysis shows a possible problem on the input gear of the left input-shaft module. The Condition Indicator (CI) found are: ESA_M6, EAS_IMP, PSA_EIIV, PSA_EIIE, FSA_GE1, FSA_GE2, ESA_WEA, SIG_STD, FSA_SO1, FSA_SO2	39-A-18-12-00-00A-421D-K
1812-03A	The TVM analysis shows a possible problem on the input pinion of the right input shaft module. The Condition Indicator (CI) found are: ESA_M6, EAS_IMP, PSA_EIIV, PSA_EIIE.	39-A-18-12-00-00A-421E-K
1812-03B	The TVM analysis shows a possible problem on the input pinion of the right input shaft module. The Condition Indicator (CI) found are: FSA_GE1, FSA_GE2, ESA_WEA, SIG_STD	39-A-18-12-00-00A-421F-K
1812-03C	The TVM analysis shows a possible problem on the input pinion of the right input shaft module. The Condition Indicator (CI) found are: FSA_SO1, FSA_SO2	39-A-18-12-00-00A-421G-K
1812-04	The TVM analysis shows a possible problem on the input gear of the left input-shaft module. The Condition Indicator (CI) found are: ESA_M6, EAS_IMP, PSA_EIIV, PSA_EIIE, FSA_GE1, FSA_GE2, ESA_WEA, SIG_STD, FSA_SO1, FSA_SO2	39-A-18-12-00-00A-421H-K
1812-05	The TVM analysis shows a possible problem on the left second-stage pinion. The Condition Indicator (CI) found are: ESA_M6, EAS_IMP, PSA_EIIV, PSA_EIIE, FSA_GE1, FSA_GE2, ESA_WEA, SIG_STD, FSA_SO1, FSA_SO2	39-A-18-12-00-00A-421J-K
1812-06	The TVM analysis shows a possible problem on the gear of the left second-stage pinion. The Condition Indicator (CI) found are: ESA_M6, EAS_IMP, PSA_EIIV, PSA_EIIE, FSA_GE1, FSA_GE2, ESA_WEA, SIG_STD, FSA_SO1, FSA_SO2	39-A-18-12-00-00A-421K-K
1812-07	The TVM analysis shows a possible problem on the right second-stage pinion. The Condition Indicator (CI) found are: ESA_M6, EAS_IMP, PSA_EIIV, PSA_EIIE, FSA_GE1, FSA_GE2, ESA_WEA, SIG_STD, FSA_SO1, FSA_SO2	39-A-18-12-00-00A-421L-K
1812-08	The TVM analysis shows a possible problem on the gear of the right second-stage pinion. The Condition Indicator (CI) found are: ESA_M6, EAS_IMP, PSA_EIIV, PSA_EIIE, FSA_GE1, FSA_GE2, ESA_WEA, SIG_STD, FSA_SO1, FSA_SO2	39-A-18-12-00-00A-421M-K
1812-09	The TVM analysis shows a possible problem on the Gleason crown. The Condition Indicator (CI) found are: ESA_M6, EAS_IMP, PSA_EIIV, PSA_EIIE, FSA_GE1, FSA_GE2, ESA_WEA, SIG_STD, FSA_SO1, FSA_SO2	39-A-18-12-00-00A-421N-K
1812-10	The TVM analysis shows a possible problem on the drive gear of the ECS compressor drive quill. The Condition Indicator (CI) found are: ESA_M6, EAS_IMP, PSA_EIIV, PSA_EIIE, FSA_GE1, FSA_GE2, ESA_WEA, SIG_STD, FSA_SO1, FSA_SO2	39-A-18-12-00-00A-421P-K
1812-11	The TVM analysis shows a possible problem on the drive gear of the left pump drive quill. The Condition Indicator (CI) found are: ESA_M6, EAS_IMP, PSA_EIIV, PSA_EIIE, FSA_GE1, FSA_GE2, ESA_WEA, SIG_STD, FSA_SO1, FSA_SO2	39-A-18-12-00-00A-421Q-K
1812-12	The TVM analysis shows a possible problem on the drive gear of the right pump drive quill. The Condition Indicator (CI) found are: FSA_M6, FSA_IMP, PSA_EIIV, PSA_EIIE, FSA_GE1, FSA_GE2, FSA_WEA, SIG_STD	39-A-18-12-00-00A-421R-K

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Maintenance message index

Refer to [Table 2](#).

Table 2 Maintenance message index

Maintenance message	Fault isolation reference (DMC)
(ADS1) ADM1/WRG/CSIO	39-A-34-15-00-00A-421A-A
(ADS1) AIOP B1	39-A-34-15-00-00A-421C-A
(ADS1) CSIO1/AOT1/WRG	39-A-34-15-00-00A-421D-A
(ADS1) DC-840/WRG/CIO1	39-A-34-15-00-00A-421B-A
(ADS2) ADM2/WRG/CSIO2	39-A-34-15-00-00A-421E-A
(ADS2) AIOP B2 FAILURE	39-A-34-15-00-00A-421G-A
(ADS2) CSIO2/AOT2/WRG	39-A-34-15-00-00A-421H-A
(ADS2) DC-840/WRG/CIO2	39-A-34-15-00-00A-421F-A
(AHRS 1A) CAL PROM FAIL	39-A-34-23-00-00A-421B-A
(AHRS 1A) FAN FAIL	39-A-34-23-00-00A-421C-A
(AHRS 1A) FLUX VALVE FAIL	39-A-34-23-00-00A-421D-A
(AHRS 2A) CAL PROM FAIL	39-A-34-23-00-00A-421F-A
(AHRS 2A) FAN FAIL	39-A-34-23-00-00A-421G-A
(AHRS 2A) FLUX VALVE 2 FAIL	39-A-34-23-00-00A-421H-A
(AIOPA1) CMC TEST TIME FAULT	39-A-22-11-00-00A-421C-A
(AIOPA1) FAILURE	39-A-22-11-00-00A-421A-A
(AIOPA1) MWF MISCOMP FAULT	39-A-22-11-00-00A-421B-A
(AIOPA2) CMC TEST TIME FAULT	39-A-22-11-00-00A-421J-A
(AIOPA2) FAILURE	39-A-22-11-00-00A-421G-A
(AIOPA2) MWF MISCOMP FAULT	39-A-22-11-00-00A-421H-A
(AIOPB1) CMC TEST TIME FAULT	39-A-22-11-00-00A-421F-A
(AIOPB1) FAILURE	39-A-22-11-00-00A-421D-A
(AIOPB1) MWF MISCOMP FAULT	39-A-22-11-00-00A-421E-A
(AIOPB2) CMC TEST TIME FAULT	39-A-22-11-00-00A-421M-A
(AIOPB2) FAILURE	39-A-22-11-00-00A-421K-A
(AIOPB2) MWF MISCOMP FAULT	39-A-22-11-00-00A-421L-A
(CIO1) MWF MISCOMP FAULT	39-A-31-40-00-00A-422J-A
(CIO2) MWF MISCOMP FAULT	39-A-31-40-00-00A-422L-A
(CLU1) COM 1	39-A-23-11-00-00A-421B-A
(CLU1) COM/WRG/ANT	39-A-23-11-00-00A-421A-A
(CLU1) FAN/NIM1	39-A-23-82-00-00A-421X-A

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1 Detected fault list

Refer to [Table 2](#).

Table 2 Detected fault list

Message identification (Fault code)	Description	LRU	Fault isolation reference (DMC)
AIOPA1 FAILURE (22121601CBT)	The CMC senses an internal malfunction in the Number 1 actuator input/output processor (AIOP1) module	AIOP1 module	39-A-22-11-00-00A-421A-A
(AIOPA1) MWF MISCAMP FAULT (22121602CBT)	The CMC senses an incorrect data between the monitor warning functions (MWF)	NIC/PROC 1 module, NIC/PROC 2 module	39-A-22-11-00-00A-421B-A
(AIOPA1) CMC TEST TIME FAULT (22121606CBT)	The CMC senses that the time (duration) for the loadable diagnostic information (LDI) database is incorrect for the test or the Number 1 actuator input/output processor (AIOP1) module is defective	AIOP1 module	39-A-22-11-00-00A-421C-A
AIOPB1 FAILURE (22121701CBT)	The CMC senses an internal malfunction in the Number 3 actuator input/output processor (AIOP3) module	AIOP3 module	39-A-22-11-00-00A-421D-A
(AIOPB1) MWF MISCAMP FAULT (22121702CBT)	The CMC senses an incorrect data between the monitor warning functions (MWF)	NIC/PROC 1 module, NIC/PROC 2 module	39-A-22-11-00-00A-421E-A
(APB2) AHRU2/AIOPB2/WRG FAULT (2212002APB2)	The autopilot (AP2) does not engage or stay engaged. The data of the Number 2 attitude heading reference unit (AHRU2) are incorrect	AHRU2 unit, AIOP4 module	39-A-22-11-00-00A-421F-A
(APB2) AIOPB2 PIT SW FAULT (2212003APB2)	The autopilot (AP2) pitch axis does not engaged or stays engaged. The heartbeat monitor watcher-function senses a pitch axis software-processing malfunction	AIOP4 module	39-A-22-11-00-00A-421G-A
(APB2) AIOPB2 ROL SW FAULT (2212004APB2)	The autopilot (AP2) roll axis does not engage or stays engaged. The heartbeat monitor watcher-function senses a roll axis software-processing malfunction	AIOP4 module	39-A-22-11-00-00A-421H-A
(APB2) AIOPB2 YAW SW FAULT (2212005APB2)	The autopilot (AP2) yaw axis does not engage or stays engaged. The heartbeat monitor watcher-function senses a yaw axis software-processing malfunction	AIOP4 module	39-A-22-11-00-00A-421J-A
(APB2) AIOPB2 CAN/CBIT SW FAULT (2212006APB2)	The autopilot (AP2) does not engage or stays engaged. The heartbeat monitor watcher-function senses a control area network (CAN) message software-processing malfunction. The heartbeat monitor watcher-function senses a continuous built-in test (BIT) software-processing malfunction	AIOP4 module	39-A-22-11-00-00A-421K-A
(APB2) AIOPB2 HW FAULT (2212008APB2)	The autopilot (AP2) does not engage or stays engaged. The internal-hardware monitors of the Number 4 actuator input/output (AIOP4) module senses a malfunction	AIOP4 module, Number 2 configuration module	39-A-22-11-00-00A-421L-A
(APB2) PIT ACT2 STUCK OFF FAULT (2212009APB2)	When the Number 2 actuator input/output processor (AIOP2) module or the AIOP4 module tells to the pitch actuator to engage, it sends a report that one or more of condition that follows occurs: (1) the brake is engaged, (2) the motor does not operate, (3) the actuator is in the standby mode	AIOP2 module, AIOP4 module, Pitch actuator	39-A-22-11-00-00A-421M-A

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39-A-24-32-00-00A-421D-A Battery power generation system - Fault Code 2432-04 – Fault isolation procedures

39-A-24-32-00-00A-421E-A Battery power generation system - Fault Code 2432-05 – Fault isolation procedures

39-A-24-61-02-00A-520A-A Number 2 power distribution panel – Remove procedures

39-A-24-61-02-00A-720A-A Number 2 power distribution panel – Install procedures

Description

1 Observed fault list

Refer to [Table 2](#).

Table 2 Observed fault list

Message identification (Fault code)	Description	LRU	Fault isolation reference (DMC)
1 DC GEN (2431-01)	On the MFD, the 1 DC GEN caution message comes on	Number 1 starter generator, Number 1 generator control unit, Number 1 power distribution panel	39-A-24-31-00-00A-421A-A
2 DC GEN (2431-02)	On the MFD, the 2 DC GEN caution message comes on	Number 2 starter generator, Number 2 generator control unit, Number 2 power distribution panel	39-A-24-31-00-00A-421B-A
1 DC GEN HOT (2431-03)	On the MFD, the 1 DC GEN HOT caution message comes on	Number 1 starter generator	39-A-24-31-00-00A-421C-A
2 DC GEN HOT (2431-04)	On the MFD, the 2 DC GEN HOT caution message comes on	Number 2 starter generator	39-A-24-31-00-00A-421D-A
MAIN BATT HOT (2432-01)	On the MFD, the MAIN BATT HOT warning message comes on	Main battery	39-A-24-32-00-00A-421A-A
AUX BATT HOT (2432-02)	On the MFD, the AUX BATT HOT warning message comes on	Auxiliary battery	39-A-24-32-00-00A-421B-A
MAIN BATT OFF (2432-03)	On the MFD, the MAIN BATT OFF caution message shows with the MAIN BATT switch and the BATTERY MASTER switch set to the ON position	Main battery, main battery relay K3, Number 1 power distribution panel	39-A-24-32-00-00A-421C-A
AUX BATT OFF (2432-04)	On the MFD, the AUX BATT OFF caution message shows with the AUX BATT switch and the BATTERY MASTER switch set to the ON position	Auxiliary battery, relay K2, Number 2 power distribution panel	39-A-24-32-00-00A-421D-A
BATT OFF LINE (2432-05)	On the MFD, the BATT OFF LINE caution message comes on	Main battery relays K1, master battery relay K2	39-A-24-32-00-00A-421E-A
BUS TIE OPEN (2461-01)	On the MFD, the BUS TIE OPEN caution message comes on. The 1(2) DC GEN caution message is off	Number 2 power distribution panel	39-A-24-61-02-00A-520A-A 39-A-24-61-02-00A-720A-A
DC BUS FAIL (2461-02)	On the MFD, the DC BUS FAIL caution message comes on. The 1(2) DC GEN caution message is off	Number 2 power distribution panel	39-A-24-61-02-00A-520A-A 39-A-24-61-02-00A-720A-A

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Central computers - Fault Code 31411101CBT – Fault isolation procedures

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Table 1 References

Data Module	Title
39-A-00-20-00-00A-120A-A	Helicopter safety – Make the helicopter safe for maintenance
39-A-12-41-00-00A-510A-A	External electrical power – Disconnect procedures
39-A-12-41-00-00A-730A-A	External electrical power – Connect procedures
39-A-31-41-06-00A-520A-A	Number 1 network interface controller/processor (NIC/PROC1) module – Remove procedures
39-A-31-41-06-00A-720A-A	Number 1 network interface controller/processor (NIC/PROC1) module – Install procedures

Procedure

1 Fault Code: 31411101CBT

1.1 Fault description

1.1.1 The CMC senses an internal failure in the processor of the NIC/PROC1 module.

1.2 Preliminary requirements

1.2.1 Required conditions

Table 2 Required conditions

Condition	Data Module/Technical Publication
The helicopter must be safe for maintenance	39-A-00-20-00-00A-120A-A
The external electrical power must be connected to the helicopter	39-A-12-41-00-00A-730A-A

1.2.2 Support equipment

Table 3 Support equipment

AFIP - 39-A-31-40-00-00A-421A-A Central computers - Fault Code 31411101CBT - Fault isolation procedures
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AIRCRAFT MAINTENANCE PUBLICATION

GENERAL DESCRIPTION

This publication gives you all the data necessary to do the maintenance of the AgustaWestland AW139 helicopter.

It contains information required to service, functionally check, and repair or replace all systems and equipment installed in the aw139, normally requiring such action on the line or in the maintenance hangar.

PUBLICATION LAYOUT

All maintenance data are included in data modules identified by Data Modules Code.

The Data Modules can be Descriptive or Procedural.

DESCRIPTIVE DATA MODULE

In this module you find the data related to the descriptive data modules written below the headings that follow:

- **References:** Below this heading you find a list of the data modules and technical publications which are included as references in the data module. "No references" is written if there are no references
- **Description:** Below this heading you find lines of text and the related tables and figures.

These headings do not have a number.

Each data module includes a table of contents, a list of tables and a list of figures (if applicable).

PROCEDURAL DATA MODULE

The data about a procedural data module are included below the headings that follow:

- **References:** Below this heading you find a list of the data modules and technical publications which are included as references in the data module

- **Preliminary requirements:** Below this heading you find all the data you must know before you do the procedure. The preliminary requirements are written below these headings:
 - **Required conditions:** Below this heading you find a list of the cross-reference documents that are necessary to do the procedure
 - **Support equipment:** Below this heading you find a list of the special tools and support equipment that are necessary to do the procedure.

The standard tools are not shown in the list.

The nomenclature, the identification number and the quantity identify the support equipment.

The identification number is the same number as used in the Illustrated Tool and Equipment Publication (39-A-ITEP-00-X).

In the procedure, the words "Support Equipment Ref." followed by a number in sequence identify each support equipment. This number is shown also in the nomenclature column of the list.

"No support equipment is required" is written if no support equipment is necessary to do the procedure

- **Supplies:** Below this heading you find a list of all of the consumables, materials and expendables necessary to do the procedure.

The nomenclature, the identification number and the quantity identify the supplies.

The identification number is:

- The C-number for the consumables and materials
- The Catalogue Sequence Number (CSN) for the expendables.

In the procedure, the words "Supply Ref." followed by a number in sequence identify each supply. This number is shown also in the nomenclature column of the list.

"No supplies are required" is written if no supplies are necessary to do the procedure.

- **Spares:** Below this heading you find a list of the spares that are necessary to do the procedure.

The nomenclature, the identification number and the quantity identify the spares.

The identification number is the Catalogue Sequence Number (CSN).

In the procedure, the words "Spare Ref." followed by a number in sequence identifies each spare. This number is shown also in the nomenclature column of the list.

"No spares are required" is written if no spares are necessary to do the procedure.

When the data module tells you to install an item, the first data about such an item in the list is its CSN. But the entry for quantity is "AR" because it is possible that you install again the old item and not a new one.

- Safety conditions: Below this heading you find the general warnings, cautions and notes that are applicable to the data module.

"None" is written if no general warning, caution or note is applicable.

These headings do not have a number.

- Procedure: Below this heading you find the sequence of the steps and illustrations which give the instructions necessary to do the procedure.
- Requirements after job completion: Below this heading you find all the instructions necessary to put the helicopter back to operation.

"None" is written if instructions are not necessary.

These headings do not have a number.

Each data module includes a table of contents, a list of tables and a list of figures (if applicable).

"No references" is written, if there are no references.

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DC main generation system – Description of how it is made

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- 3 Number 1 starter generator mount flange
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- 5 Number 1 starter generator air outlet duct
- 6 Number 1 generator control unit
- 7 Number 1 shunt
- 8 Number 2 starter generator
- 9 Number 2 starter generator mount flange
- 10 Number 2 starter generator air inlet duct
- 11 Number 2 starter generator air outlet duct
- 12 Number 2 generator control unit
- 13 Number 2 shunt
- 14 Number 3 and Number 4 DC current transformers
- 15 Number 1 and Number 2 DC current transformers
- 16 GEN 1 and GEN 2 switches

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1 References

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- 1 DC main generation system - Primary components (Sheet 1 of 4)
- 2 DC main generation system - Primary components (Sheet 2 of 4)
- 3 DC main generation system - Primary components (Sheet 3 of 4)
- 4 DC main generation system - Primary components (Sheet 4 of 4)

References

Table 1 References

Data Module

Title

No references

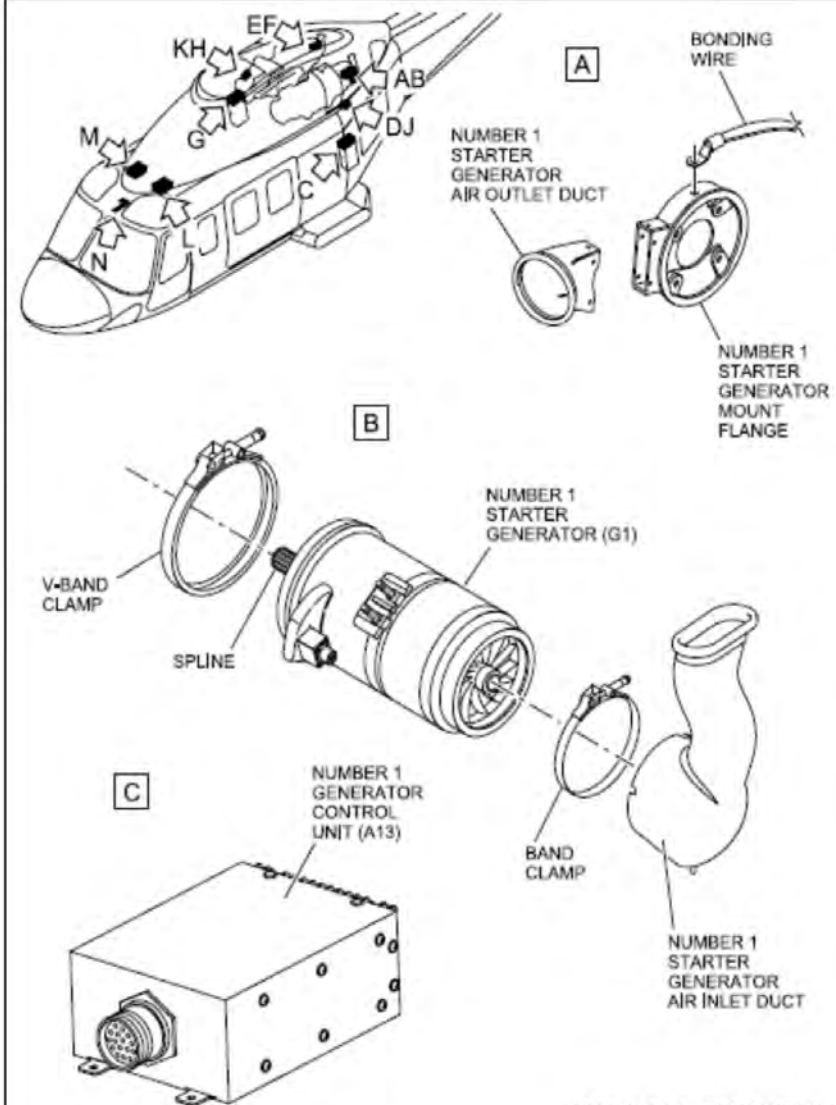
Description

1 Primary components

The DC main generation system includes these primary components:

- The Number 1 starter generator
- The Number 1 starter-generator mount-flange
- The Number 1 starter-generator air-inlet duct
- The Number 1 starter-generator air-outlet duct
- The Number 1 generator-control unit
- The Number 1 shunt
- The Number 2 starter generator
- The Number 2 starter-generator mount-flange
- The Number 2 starter-generator air-inlet duct
- The Number 2 starter-generator air-outlet duct

AMP - 39-A-24-31-00-00A-041A-A DC main generation system - Description of how it is made 001



ICN-39-A-243100-G-00001-01415-A-01-1
010x35x2431000x041A Figure 1 • DC main generation system • Primary components (Sheet 1 of 4)

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Number 1 starter generator – Install procedures

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- [Preliminary requirements](#)
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- 1 [Number 1 starter generator - Install procedures \(Sheet 1 of 2\)](#)
- 1 [Number 1 starter generator - Install procedures \(Sheet 2 of 2\)](#)

References

Table 1 References

Data Module	Title
39-A-00-20-00-00A-120A-A	Helicopter safety – Make the helicopter safe for maintenance
39-A-00-50-00-00A-074A-D	Material data – Dangerous materials
39-A-06-41-00-00A-010A-A	Access doors and panels – General data
39-A-24-31-00-00A-051L-A	DC main generation system – Wiring Diagram
39-A-24-31-00-00A-321A-A	DC main generation system - Generator control units – Operational check
39-A-24-31-09-00A-720A-A	Number 1 starter generator air inlet duct – Install procedures

Preliminary requirements

Required conditions

Table 2 Required conditions

Condition	Data Module/Technical Publication
The helicopter must be safe for maintenance	39-A-00-20-00-00A-120A-A

Support equipment

Table 3 Support equipment

Nomenclature	Identification No.	Qty
1. Platform, left	GG-01-00	1

Supplies

Table 4 Supplies

AMP - 39-A-24-31-01-00A-720A-A Number 1 starter generator - Install procedures

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Nomenclature	Identification No.	Qty
1. Cloth, soft lint-free	C011	AR
2. Solvent, cleaning	C010	AR
Spares		
Table 5 Spares		
Nomenclature	Identification No.	Qty
1. Starter generator	24-31-00-02-002	AR
2. Packing, preformed	24-31-00-02-003	1
Safety conditions		
WARNING		
The Solvent (Supply Ref. 2) is a dangerous material. Before you do this procedure, make sure that you know all the safety precautions and first aid instructions for the solvent. Refer to 39-A-00-50-00-00A-074A-D .		
CAUTION		
Remove the tape from the disconnected terminal leads of the electrical wires. Do this immediately before you connect the wires.		
Procedure		
1	During this procedure, you must remove the caps from the electrical connectors. Do this immediately before you connect each electrical connector.	
2	Put the Platform (Support Equipment Ref. 1) adjacent to the left side of the fuselage.	
3	Install the Number 1 starter generator (G1) (7, Fig 1) on the mount flange (11) as follows:	
3.1	Remove the V-band clamp (13) and the cover from the mount flange (11).	
3.2	Clean the shaft (15) and the splined coupling (16) with the Cloth (Supply Ref. 1) and the Solvent (Supply Ref. 2).	
3.3	Install the new packing (Spare Ref. 2) (14) in the groove of the shaft (15).	
3.4	Carefully put the Number 1 starter generator (7) in position on the mount flange (11). Make sure that you engage the three centering pins of the mount flange (11) correctly.	
3.5	Install the V-band clamp (13) across the mount flange (11) and the Number 1 starter generator (7).	
3.6	Torque the turnbuckle (12) of the V-band clamp (13) to 7.90 N m (70.00 lbf in).	
	Note When you do the subsequent step, refer to the wiring diagram 39-A-24-31-00-00A-051L-A for the correct electrical connections.	
4	Put the electrical wires (3) and (10) in their position on the related studs (5) and (9).	
5	Attach the electrical wires (3) and (10) to the studs (5) and (9) with these parts:	
	– The two washers (2)	

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– The two self-locking nuts (1).

6 Torque the two self-locking nuts (1) to 24.9 thru 26.6 N m (220 thru 235 lbf in).

7 Connect the rubber cover (4) to the terminal board (6) with your hand.

8 Connect the connector G1P1 (8) to the Number 1 starter generator (G1) (7).

Requirements after job completion

1 Remove all the tools and the other items from the work area. Make sure that the work area is clean.

2 Close the access door 461AL. Refer to [39-A-05-41-00-00A-010A-A](#).

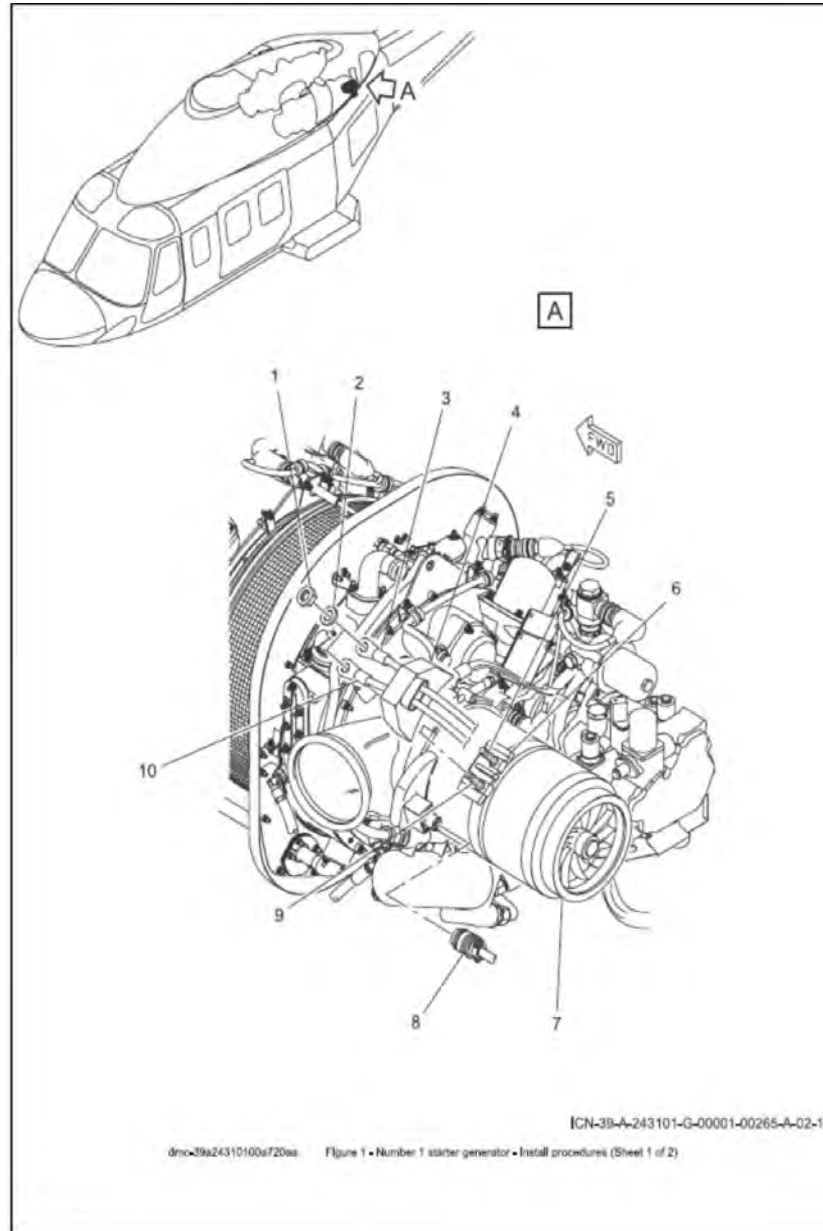
3 Remove the platform from the left side of the fuselage.

4 Install the Number 1 starter generator air inlet duct. Refer to [39-A-24-31-09-00A-720A-A](#).

5 Do the operational check of the DC main generation system. Refer to [39-A-24-31-00-00A-321A-A](#).

AMP - 39-A-24-31-01-00A-720A-A Number 1 starter generator - Install procedures

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ICN-39-A-004100-G-A0126-03282-A-01-1

AIRCRAFT WIRING DIAGRAM PUBLICATION**GENERAL DESCRIPTION**

This publication gives you the wiring data applicable to the AgustaWestland AW139 helicopter.

All the wiring data are included in data modules.

Three volumes make the publication.

The Volume 1 applies to the AW139 helicopters S/N 31005 thru 31200 and S/N 41001 thru 41200.

The Volume 2 applies to the AW139 helicopters S/N 31201 thru 31399 and S/N 41201 thru 41289.

The Volume 3 applies to the AW139 helicopters S/N 31400 and subsequent and S/N 41290 and subsequent.

Each volume includes:

- Chapter 00: Description of the publication (Helicopter general; The list of effectivity codes; The list of abbreviations; Introduction)
- Chapter 91: containing Equipment list; Wire list; Plug and receptacle list; Ground list; Location Diagrams; Routing Diagrams
- Helicopter wiring: containing the Wiring of the helicopter systems.

EQUIPMENT LIST

The equipment list is a list of all the components that have electrical connections.

WIRE LIST

The wire list is a list of all wire numbers in sequence.

PLUG AND RECEPTACLE LIST

The plug and receptacle list is a list of all the plugs and receptacles in alphanumeric sequence.

GROUND LIST

The ground list is a list of all ground points in alphanumeric sequence.

WIRING DIAGRAMS

There is a wiring diagram for each electrical system of the helicopter.

Each wiring diagram is shown on a Data Module (DM).

The wiring diagrams show all the terminating points, wire identification codes, equipment electrical identifications, junction boxes, shields and ground connections.

Usually, the wiring diagrams show the condition of the circuit when the helicopter is on the ground and the circuit is not energized. If the circuit condition is different, the related indication is given on the wiring diagram.

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39-A-00-00-00A-018B-D Wiring data publication - Introduction

CHAPTER 91 HELICOPTER WIRING

91 AWDP LOEDM

Section 91-00 Helicopter wiring

39-A-91-00-00-00A-056A-A Helicopter wiring - Equipment list

39-A-91-00-00-00A-056B-A Helicopter wiring - Equipment list

39-A-91-00-00-00A-056C-A Helicopter wiring - Equipment list

39-A-91-00-00-00A-057A-A Helicopter wiring - Wire list

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39-A-91-00-00-00A-058E-A Helicopter wiring - Plug and receptacle list

39-A-91-00-00-00A-059A-A Helicopter wiring - Ground list

39-A-91-00-00-01A-055A-A Nose equipment and panels - Location diagram

39-A-91-00-00-02A-055A-A Center fuselage equipment and panels - Location diagram

39-A-91-00-00-03A-055A-A Alt fuselage equipment and panels - Location diagram

39-A-91-00-00-04A-055A-A Tail section fuselage equipment and panels - Location diagram

39-A-91-00-00-05A-055A-A Upper deck fuselage equipment and panels - Location diagram

Section 91-10 Location and routing diagrams

39-A-91-11-00-00A-052A-A Nose harness installation - Routing diagram

39-A-91-12-00-00A-052A-A Center fuselage harness installation - Routing diagram

39-A-91-13-00-00A-052A-A Alt fuselage harness installation - Routing diagram

39-A-91-14-00-00A-052A-A Tail section harness installation - Routing diagram

39-A-91-15-00-00A-052A-A Upper deck harness installation - Routing diagram

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Helicopter wiring – Equipment list

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Description

1 Equipment list

Refer to [Table 1](#).

The list includes the equipment reference designations in the alphanumeric sequence from letters A thru G.

Refer to data module [39-A-91-00-00-00A-056B-A](#) for the list of the equipment reference designations in the alphanumeric sequence from letters H thru P.

Refer to data module [39-A-91-00-00-00A-056C-A](#) for the list of the equipment reference designations in the alphanumeric sequence from letters Q thru Z.

Table 1 Equipment list

Electr ident	Nomenclature	Shown on DMC	Note
A10	CALIBRATION UNIT	39-A-22-12-00-00A-051B-K 39-A-31-42-00-00A-051A-A 39-A-34-23-00-00A-051A-A	
A100		39-A-34-44-00-00A-051A-K	
A100P1	CONNECTOR	39-A-34-44-00-00A-051A-K	
A101		39-A-23-14-00-00A-051A-K	
A101P1	CONNECTOR	39-A-23-14-00-00A-051A-K	
A101P2	CONNECTOR	39-A-23-14-00-00A-051A-K	
A102		39-A-23-14-00-00A-051A-K	
A102P1	CONNECTOR WITH EMI/RFI	39-A-23-14-00-00A-051A-K	
A102P3	CONNECTOR	39-A-23-14-00-00A-051A-K	
A103	PROCESSOR UNIT	39-A-34-57-00-00A-051A-K	
A103GS1A	GROUND POINT	39-A-34-57-00-00A-051A-K	
A103GS1B	GROUND POINT	39-A-34-57-00-00A-051A-K	
A103GS1C	GROUND POINT	39-A-34-57-00-00A-051A-K	
A103P1	CONNECTOR	39-A-34-57-00-00A-051A-K	
A103P2	CONNECTOR	39-A-34-57-00-00A-051A-K	
A103PA	CONNECTOR	39-A-34-57-00-00A-051A-K	
A103PB	CONNECTOR	39-A-34-57-00-00A-051A-K	

AWDP - VOL 1 - 39-A-91-00-00-00A-056A-A Helicopter wiring - Equipment list

Intranet (ascs1006)

Issue Number: 006

Issue Date: 2008-07-03

RFU

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Effectivity: All

ICN-39-A-004000-G-A0126-00010-A-01-1

39-A-00-40-00-00A-046A-T

FOR TRAINING PURPOSE ONLY

2016-11-11 Page: 30

Overhead panel installation – Wiring diagram

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1 [Overhead panel installation - Wiring diagram \(Sheet 24 of 24\)](#)

References

Table 1 References

Data Module	Title
39-A-21-20-00-00A-051A-A	Ventilation system – Wiring diagram
39-A-21-40-00-00A-051A-K	Heating system – Wiring diagram
39-A-21-90-00-00A-051A-K	Integrated environmental control system – Wiring diagram
39-A-22-11-00-00A-051A-A	Automatic flight control system – Wiring diagram
39-A-22-12-00-00A-051A-A	Flight director system – Wiring diagram
39-A-23-10-00-00A-051A-A	Radio master switch circuit – Wiring diagram
39-A-23-13-00-00A-051A-K	V/UHF system – Wiring diagram

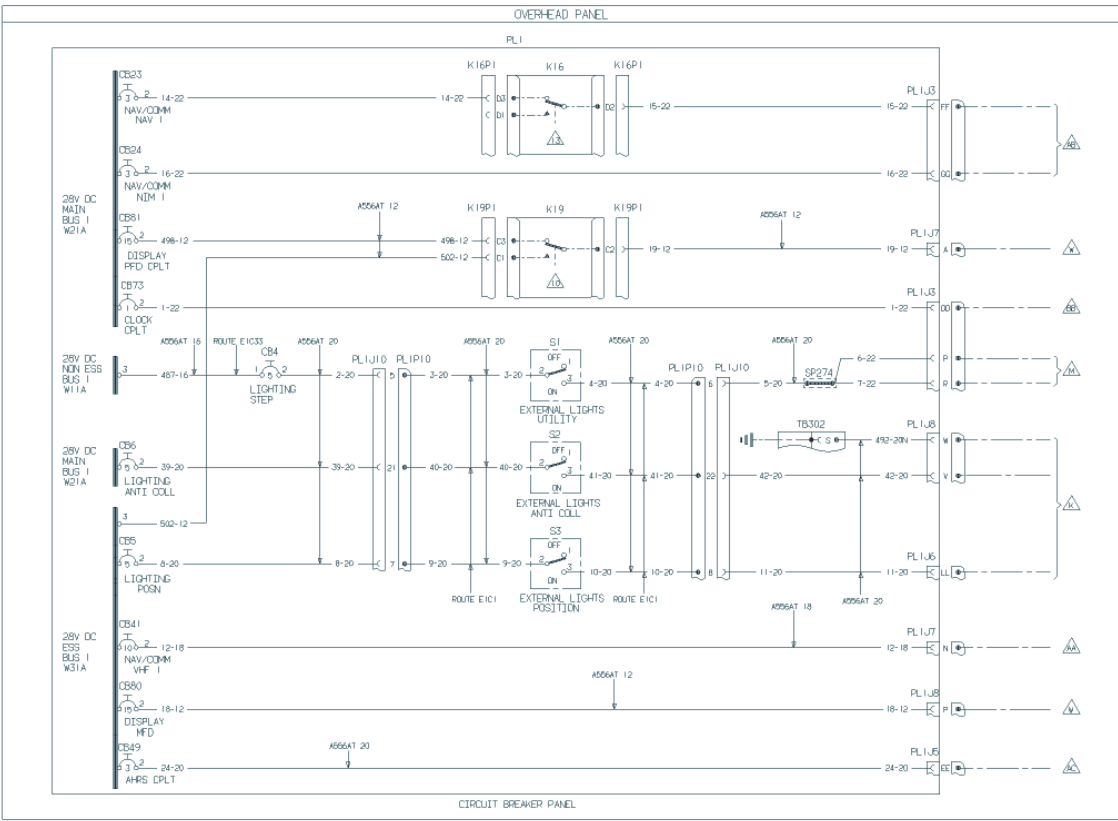


Figure 1 – Overhead panel installation - Wiring diagram (Sheet 1 of 24)

AWDP - VOL 1 - 39-A-24-91-00-00A-051A-A Overhead panel installation - Wiring diagram

Intranet (ascs1006)

Issue Number: 003

Figure 1 – Overhead panel installation - Wiring diagram (Sheet 1 of 24)

Issue Date: 2011-04-27

RFL

QA: TABTOP

Effectivity: All

AIRCRAFT ILLUSTRATED PARTS DATA

GENERAL DESCRIPTION

This publication is the Illustrated Parts Data (IPD) of the AgustaWestland AW139 helicopter.

It includes the data that are necessary for the requisition, storage, identification and issue of the spare parts for the helicopter.

The illustrated parts data publication contains:

- The Introduction data modules
- The Illustrated Parts Data (IPD) modules (figures and the related detailed parts lists)
- The Cross Reference Index data module

All the IPD are included in data modules. A code identifies each data module.

Each Illustrated Parts Data (IPD) module includes a figure and the related text (detailed parts list). More than one sheet can show an IPD figure if necessary.

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Section 34-10 Flight environment data

Section 34-20 Altitude and direction

Section 34-30 Landing and taxiing aids

Section 34-40 Independent position determining

39-A-34-42-00-010-941A-A WEATHER RADAR SYSTEM

39-A-34-42-00-010-941A-A WEATHER RADAR SYSTEM (RC)

39-A-34-43-00-010-941A-A ENHANCED GROUND PROXIMITY WARNING S

39-A-34-44-00-010-941A-A TRAFFIC ALERT AND COLLISION AVOIDANCE

39-A-34-44-01-010-941A-A TCAS INSTL

39-A-34-44-01-020-941A-A TCAS INSTL

39-A-34-44-02-010-941A-A TCAS TOP ANTENNA PROVISION

39-A-34-44-02-020-941A-A TCAS TOP ANTENNA PROVISION

39-A-34-44-03-010-941A-A TCAS PROCESSOR SUPPORT INSTL

39-A-34-44-04-010-941A-A TCAS STRUCTURAL PROVISION

39-A-34-44-04-020-941A-A TCAS STRUCTURAL PROVISION

39-A-34-44-04-030-941A-A TCAS STRUCTURAL PROVISION

39-A-34-45-00-010-941A-A WEATHER RADAR INSTL PRIMUS 701

39-A-34-45-00-020-941A-A WEATHER RADAR INSTL PRIMUS 701

39-A-34-46-00-010-941A-A SURVEILLANCE RADAR SYSTEM

39-A-34-46-00-020-941A-A WAVEGUIDE AND COAXIAL CABLE COVER INS

39-A-34-46-00-030-941A-A WAVEGUIDE AND COAXIAL CABLE INSTL

39-A-34-47-00-010-941A-A LIGHTING SENSOR SYSTEM (LSS)

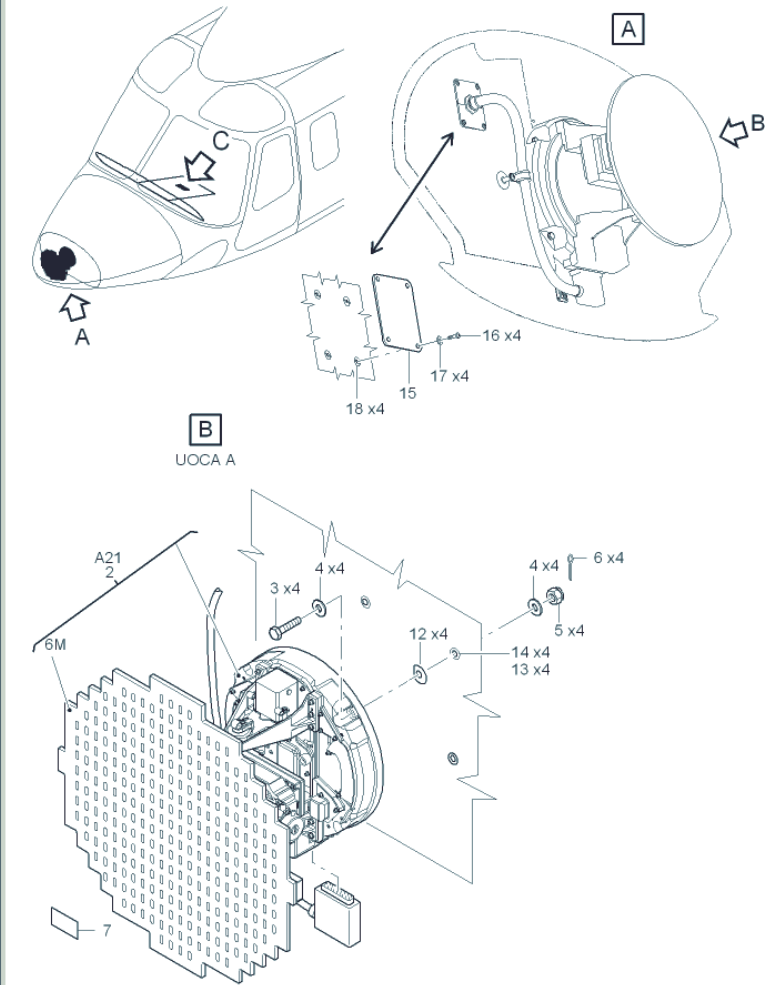


FIG. 01A - WEATHER RADAR SYSTEM (SHEET 1 OF 3)

ICN-39-A-344200-G-00001-09109-A-03-1

Weather radar system Illustrated Parts Data - IPD

FIG ITEM	PART NUMBER NSN	DESCRIPTION 1 2 3 4 5 6 7 8 9	**UOCA.. MVEFFECT..	I C Y	QNH A UI	SMR...
01 A						
- 0	DPN34042	WEATHER RADAR SYSTEM	A *2A A *A1		REF	XC
- 1	4G3441A00711	* WEATHER RADAR INSTL (Refer to 00-00-00 fig. 01 item 196 for NHA)	**A A *2A A *A1		REF	XC
- 1	4G3441A00711	* WEATHER RADAR INSTL (MODIFIED BY PN 3G5306P35211) (Refer to 00-00-00 fig. 01 item 196 for NHA)	** B A *2A A *A1		REF	XC
2	7021450-601	** WEATHER RADAR RECEIVER TRANSMITTER ANTENNA (RTA)	A *2A A *A1		0001 EA	PAOLD
3	AN4-12	** BOLT,MACHINE	A *2A A *A1		0004 EA	PAOZZ
3	NAS6604D30	** BOLT,CLOSE TOLERANCE	A *2A A *A1		0004 EA	PAOZZ
4	NAS1149D0432J	** WASHER,FLAT	A *2A A *A1		0008 EA	PAOZZ
5	MS17825-4	** NUT,SELF-LOCKING,SLOTTED	A *2A A *A1	-1	0004 EA	PAOZZ
5	MS14144L4	** NUT,SELF-LOCKING,HEXAGON	A *2A A *A1	2-	0004 EA	PAOZZ
6	MS24665-172	** PIN,COTTER	A *2A A *A1		0004 EA	PAOZZ
6M	7021479-310	*** ANTENNA	A *2A A *A1		0001 EA	PAOZZ
7	ED300A21	** DECAL	A *2A A *A1		0001 EA	PAOZZ
- 8	7021451-412	** INSTL KIT (WX-440)	A *2A A *A1		0001 EA	PAOZZ
9	7008471-678	** WEATHER RADAR CONTROLLER	A *2A A *A1	-1	0001 EA	PAOLD
9	7008471-688	** WEATHER RADAR CONTROLLER	A *2A A *A1	2-	0001 EA	PAOLD
10	ED300PL29	** DECAL	A *2A A *A1		0001 EA	PAOZZ
10D	3G5316A72151	** SPACER	**B..... A *2A A *A1		0002 EA	PAOZZ
10J	MS27039-0806	** SCREW,MACHINE	**B..... A *2A A *A1		0004 EA	PAOZZ

IPD - 39-A-34-42-00-01A-941A-A WEATHER RADAR SYSTEM

QA:

Effectivity: All

Intranet (ascs1006) Issue Number: 001 Issue Date: 2012-10-16 RFU

ICN-39-A-004000-G-A0126-00012-A-01-1

DETAILED PARTS LIST

The detailed parts list is a table. Each column of the table has a heading that gives the contents. The columns include the information that follows:

FIGURE AND ITEM NUMBER COLUMN (FIG ITEM)

This column shows the figure number and variants that identify the figure to which the parts list text refers. These data are shown only one time at the first line of the parts list text.

The item number and variant show the callout number which identifies the item on the related figure. If an item is in the parts list, but is not shown in the figure, there is a dash before its item number.

PART NUMBER AND NATO STOCK NUMBER COLUMN (PART NUMBER NSN)

Under the PART NUMBER heading you find the combination of characters assigned to identify an item.

Under the NSN heading you find the NATO code given to the item. There is no code here when this publication is for civil helicopters.

DESCRIPTION COLUMN (DESCRIPTION)

This column gives the name of the item. There are dots before the name. They show the position of the item in the breakdown. Each dot agrees with a number (1 through 9) and you can see this number on the top of the column. The number shows the relation of the item with the assembly. If the item is an attaching part, there are no dots, but asterisks.

The description column shows more information in brackets. Slashes (/) are the separation between different information.

USABLE ON CODE ASSEMBLY AND MODEL VERSION AND EFFECTIVITY COLUMN (UOCA MVEFFECT)

The UOCA shows the configuration and variants of an assembly. It also shows the relation between the single parts and their assemblies. Two asterisks are written in the column when a UOCA is used.

The assemblies are identified with a single alpha code in a specific position. The remaining characters are left blank.

Example (b=blank):

- ** A b b b b b
- ** b B b b b b
- ** b b C b b b

When the UOCA refers to a part of an assembly the blanks are replaced with dashes.

INTERCHANGEABILITY COLUMN (ICY)

The ICY shows that two or more items are interchangeable in the same location either for the same configuration. Or it shows that they are interchangeable in two configurations, if the part number changes.

There are two characters in the column. The first character shows the ICY of the item with the item before it. The second character shows the ICY of the item with the item after it. There is a dash in the blank space if the ICY is of one character only, to show the correct position of the item ICY.

The ICY column is left blank when the interchangeability is not given.

QUANTITY PER NEXT HIGHER ASSEMBLY AND UNIT OF ISSUE COLUMN (QNHA UI)

QUANTITY PER NEXT HIGHER ASSEMBLY

Under the QNHA heading you find the number of times an item is installed in one unit of the next higher assembly.

AR is written when you cannot give a quantity. AR is also written when you cannot tell the necessary quantity of the items.

REF is written when an item is included in the list only for reference. The items on top of all the figures are reference items.

For the select-on-test items, the correct quantity (usually 1) is given for the first item in the range. AR is written for the other items in the range.

For the select-on-fit items, AR is usually shown for all the items in the range. The quantity is the dimension or the number of the items. If these are not applicable, it is the container or the shape of the item as necessary for requisition and issue to the user.

UNIT OF ISSUE

Under the UI heading you find the codes used to identify the physical measurement, the count or, when neither is appropriate, the container or the shape of an item for the purpose of requisitioning by the end user.

SOURCE, MAINTENANCE AND RECOVERABILITY CODE
COLUMN (SMR)

The SMR code shows:

- Source (S). 1st and 2nd position. This is how you must get the items for the maintenance, repair or overhaul of the end items.
- Maintenance (M). 3rd and 4th positions. This shows the maintenance levels approved to do the maintenance.
- Recoverability (R). 5th position. This shows what you must do with the items that are unserviceable.

NOTE

Important to remember that the effectivity codes for the publications are different, as an example the effectivity codes for the IPD do not match the effectivity codes for the AMP. Always check the effectivity code on the relevant publication.

AW139 IETP

FileViewToolsHelp

Nav. PanelHomeBackForwardPrintCopySpare PartsWork CardDisc. Rep.

IETPSearchNotesAttachmentsFavoritesHistory

AddDelete

- ACCP
- AFIP
- AMDI
- AMP
- AMPI (EASA)
- AMPI (FAA)
- AMPI (IAC AR)
- ASRP
- AWDP - VOL 1
- AWDP - VOL 2
- AWDP - VOL 3
- CR&OP
- IPD
- IPD - Title
- IPD - Table of contents
- CHAPTER 00 HELICOPTER GENERAL
 - INTRO LOEDM
 - INTRO Highlights
 - 00 IPD LOEDM
 - Section 00-00 General arrangement
 - 39-A-00-00-00-00A-018F-D Illustrated parts publication - Introduction
 - 39-A-00-00-00-00A-943A-D Illustrated parts data - List of NATO supply codes
 - 39-A-00-00-00-00A-944A-D Illustrated parts data - List of unit of issue codes
 - 39-A-00-00-00-00A-945A-D Illustrated parts data - List of abbreviations
 - 39-A-00-00-00-00A-946A-D Illustrated parts data - List of effectivity codes
 - 39-A-00-00-00-01D-941A-A GENERAL ARRANGEMENT AW139,BASIC HEL
 - 39-A-00-00-00-02D-941A-A GENERAL ARRANGEMENT AW139,BASIC HEL
 - 39-A-00-00-01-01D-941A-A FUSELAGE SECTION
 - 39-A-00-00-01-02D-941A-A ELECTRICAL/AVIONIC SECTION
 - 39-A-00-00-01-03D-941A-A ELECTRICAL/AVIONIC INST
 - 39-A-00-00-01-03A-941A-A ELECTRICAL/AVIONIC INSTL,NOSE AND COC
 - 39-A-00-00-01-04D-941A-A NOSE EQUIPMENT
 - 39-A-00-00-01-05D-941A-A ELECTRICAL/AVIONIC INSTL,FUSELAGE
 - 39-A-00-00-01-06D-941A-A CABIN EQUIPMENT INSTL
 - 39-A-00-00-01-07D-941A-A NOSE CABLE ASSY
 - 39-A-00-00-01-08D-941A-A REAR EQUIPMENT INSTL
 - 39-A-00-00-01-09D-941A-A CABIN CABLE ASSY
 - 39-A-00-00-01-10D-941A-A HARNESS INSTL,FT FUSELAGE
 - 39-A-00-00-01-11D-941A-A ELECTRICAL/AVIONIC INSTL,UPPER DECK
 - 39-A-00-00-01-12D-941A-A UPPER DECK CABLE ASSY
 - 39-A-00-00-01-13D-941A-A KIT 4TH FLAT PANEL DISPLAY
 - 39-A-00-00-01-14D-941A-A HYDRAULIC SYSTEM
 - 39-A-00-00-01-15D-941A-A KIT QUEENSLAND CABIN INTERIOR
 - 39-A-00-00-01-16D-941A-A KIT SASEMAR CABIN INTERIOR
 - 39-A-00-00-01-17D-941A-A KIT WHEEL BRAKE PARKING AND EMERGEN
 - 39-A-00-00-01-18D-941A-A KIT NVG LIGHTS
 - 39-A-00-00-01-19D-941A-A KIT CABIN VARIANT,ARAMCO
 - 39-A-00-00-01-20D-941A-A KIT BLACK ANTENNAS
 - 39-A-00-00-01-21D-941A-A KIT INCREASE GROSS WEIGHT(IGW),6800 KG
 - 39-A-00-00-01-22D-941A-A KIT INCREASE TAIL ROTOR PITCH ANGLE PO
 - 39-A-00-00-01-23D-941A-A KIT EMS PROVISION
 - 39-A-00-00-01-24D-941A-A KIT EMS PROVISION
 - 39-A-00-00-02-01D-941A-A TAIL SECTION
 - 39-A-00-00-02-02D-941A-A ELECTRICAL/AVIONIC INSTL,TAIL
 - 39-A-00-00-02-03D-941A-A CABLE ASSY,TAIL

1

Effectivity codes

Effectivity codes are included in this publication to shown service bulletins, modification and configuration differences.

The effectivity codes are shown:

- In the effectivity space on each page of the introduction data modules
- In the effectivity column of each detailed parts list page of the illustrated-parts data modules. One asterisk is written in the column when the effectivity code is used.

2

Introduction data modules - List of effectivity codes

The meaning of the effectivity codes used in the introduction data modules is as follows:

- All	:	Helicopters AW139:
		- S/N 31005 and subsequent.
		- S/N 41001 and subsequent.

3

Illustrated parts data modules - List of effectivity codes

The meaning of the effectivity codes used in the illustrated-parts data modules is as follows:

Note

The data included in this publication that applies to the helicopters S/N 31005 thru 31071 applies also to helicopters S/N 41001 and subsequent.

- No code (blank)	:	Helicopters AW139:
		- S/N 31005 and subsequent
		- S/N 41001 and subsequent
- *A1	:	Helicopters AW139:
		- S/N 31400 thru 31999
		- S/N 41300 thru 41999
- *A2	:	Helicopters AW139:
		- S/N 31005 thru 31402
		- S/N 31408 thru 31409
- *A3	:	Helicopters AW139:
		- S/N 31403 thru 31407
		- S/N 31410 thru 31999
		- S/N 41290 thru 41999
- *1A	:	Helicopters AW139:
		- S/N 31008 and 31009 (PRE MOD. B.T. 139-003)
- *1B	:	Helicopters AW139:
		- S/N 31005 and 31006
		- S/N 31008 and 31009 (POST MOD. B.T. 139-003)

Intranet (ascs1006)

Issue Number: 018

Issue Date: 2012-10-16

RFU

QA: TABTOP

Effectivity: All

ICN-39-A-004000-G-A0126-00013-A-01-1

"LEONARDO" WEB PORTAL

GENERAL DESCRIPTION

"Leonardo" AgustaWestland Customer Portal, offers a wide range of online services, ensuring a faster response and a quicker solution to any type of customer requirement. Allowing you to deliver operational success with AW products.

You can reach Leonardo directly from the AgustaWestland internet web site home page (www.agustawestland.com) where you will find a dedicated login banner for an immediate access to your account main page.

In order to evaluate and authorize the access to the portal, AW requires Customers to fill and sign the following documents:

- Customer Registration Form that contains all the information needed by AW in order to evaluate the possibility to enable customer access;
- Technical Data Agreement;
- Accept Customer Portal rules at first log in.

AgustaWestland then will provide access log in information as:

- username;
- instructions related to password reset procedure

Leonardo AW Customer Portal provides 8 main areas of functionalities:

- **"Home - What's new"**: users can check all the updates published in the website since their last visit;
- **"MyProfile"**: person entitled to access to my profile area to activate and customize user accounts;
- **"MyFleet"**: users have the ability to display the list of helicopters under their management, populated with information directly from the AgustaWestland database. By selecting individual aircraft, its specific details can be displayed, the total flight hours and aircraft availability data can be updated;
- **"MyCommunications"**: this area allows user to create service requests directly into our SAP CRM (Customer Relationship Management) system, assigning them automatically to the most

appropriate department, allowing customers to monitor the progress online through to conclusion via a dedicated tracking number. In this area it is possible to submit and monitor:

- *Technical Queries and Technical Publication Queries* directed to Product Support Engineering;
- *Customer Requests* directed to the responsible Customer Support Manager;
- *Technical Queries and Technical Publication Queries* directed to Product Support Engineering;
- *AOG Monitoring* to monitor the status of an AOG Customer Support Request (CSR), with the CSR tracking number.
- *Warranty & Power By Hour Management* to Submit WMM (W)arranty Claim (M)aintenance Work Order (M)aintenance Report Check and check the status, with updated information such as warranty receipt, evaluation, acceptance or rejection.
- **"MyPublications"**: dependant on the Customers active subscription the following technical documentations are available
 - list of applicable publications & Last Revision Manuals (in Free Web Area)
 - IETP - Amerigo 4 Mobile (for Civil Customers)
 - IETP - Interactive Electronic Technical Publications (IETP)
 - RFM - Rotorcraft Flight Manuals
 - AMPI/MPM - Maintenance Planning Manuals
 - TMI - Temporary Maintenance Instructions
 - CRH - Compatibility Reference Handbook
 - Technical Bulletins
 - Navigation Database - Download Service available
 - Information Letters in Free Web Area
- **"Online Forum (LUH/LOH fleet)"**: Technical Forum will be an online discussion site dedicated to LUH/LOH fleet hosted by Leonardo AW Customer Portal. Customer can hold conversations relevant to Technical topics using posted messages only;

- **"MyOrder" (external service):** inside the Leonardo there will be also a dedicated MY ORDER tab. It will allow Customers to reach an external service through a specific link;
- **"F.A.Q.":** Frequently Asked Questions area provides useful information applicable to Leonardo.



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MILITARY
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New Generation AW169 Full Scale Production Underway

09/01/2015

First aircraft now on the final assembly line at Vergiate facility in Italy

SEE MORE



AgustaWestland to Supply AW189 Civil Helicopters to Rosneft

07/01/2015

160 helicopters will be provided to oil company Rosneft by 2025. HeliVert will assemble the helicopters in Russia.

SEE MORE



Carabineros de Chile Order an AW139 Helicopter

23/12/2014

The order marks the entrance of the AW139 into the Chilean helicopter market and expands Carabineros de Chile's AgustaWestland helicopter fleet, which already includes five AW109 Power



HIGHLIGHTS [RSS](#)

Contest and Exhibition "Flydeas for the City"



AW189 - Going Offshore



LEONARDO'S ACCESS INSIDE AGUSTAWESTLAND WEB PORTAL

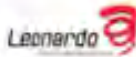
ICN-39-A-004000-G-A0126-00020-A-01-1



HOME MyProfile MyFleet MyCommunications MyPublications AW Service Centers F.A.Q.

Home
What's New

Dear Customer,

AgustaWestland is pleased to welcome you to , our brand new secured Customer Portal web-site.

Should you need to receive assistance and further clarification about Leonardo please refer to Leonardo Support Team at e-mail: leonardo.mbx@agustawestland.com

Highlights

New Reset/Change password system

Dear Customer, AW set up a new reset/change password system. Please refer to new version of the Leonardo AW Customer Portal User Guide available on the footer of each web site page, para 2.4 How to enter "Leonardo AW Customer Portal".

AW139 MAINTENANCE IMPROVEMENT TEAM

Within the Customer Advisory Board program, AgustaWestland (AW) and AW139 Customers agreed to establish a dedicated Maintenance Improvement Team (MIT) focused on the AW139 maintainability improvement.

Members are selected to represent different geographical operational areas to cover environment requirements and different operations in terms of flight activity and typical mission envelope.

So far, eight meetings took place between AW and a representative group of the AW139 fleet, at AW premises in Italy and Philadelphia, alternately, and once during HeliExpo.

AgustaWestland is pleased to announce you that the Presentations related to MIT N°8 are now available for consultation.

LEONARDO WEB PORTAL - HOME PAGE

ICN-39-A-004000-G-A0126-00019-A-01-1

ROTORCRAFT FLIGHT MANUAL

It provides all the information required to safely operate the helicopter in normal and emergency conditions.

It is divided into two Parts and nine Sections as follows:

PART I EASA APPROVED

- Section 1 - Limitations
- Section 2 - Normal Procedures
- Section 3 - Emergency and Malfunctions Procedures
- Section 4 - Performances Data
- Section 5 - Optional Equipment Supplement

PART II - MANUFACTURER'S DATA

- Section 6 - Weight and Balance
- Section 7 - Systems Description
- Section 8 - Handling and Servicing
- Section 9 - Supplemental Performance Information

SECTION 1 - LIMITATIONS

The Limitations section contains limitations required by regulation or to safely operate rotorcraft, powerplant, systems, and equipment. It includes operating limitations, instrument markings, colour coding, and basic placards.

SECTION 2 - NORMAL PROCEDURES

The Normal Procedures section contains the checklist for the normal procedures ordered by phase of flight.

Normal procedures are the result of extensive flight tests and experience with the AW139 aircraft. They are intended to ensure that the level of safety required by the design and certification process is achieved.

SECTION 3 - EMERGENCY AND MALFUNCTIONS PROCEDURES

The Emergency and Malfunctions Procedures section contains the procedures that must be performed in the event of an emergency or malfunction. These procedures are based on experience acquired in the

operation of helicopters, in general, and on flight tests conducted on AW139 helicopter.

The Emergency and Malfunction procedures are presented in the form of logic trees (flow charts). These flow charts have been formulated based on analysis and test of the cockpit indications that would be available to the flight crew following the failures/malfunctions that are included in this section.

The Emergency and Malfunctions Procedures section includes three sets of procedures:

- Emergency procedures for CAS messages
- Malfunction procedures for CAS messages
- Emergency and malfunction procedures for PFD indications

Emergency procedures are related to warning (red) messages/indications.

Malfunction procedures are related to caution (amber) messages/indications.

SECTION 4 - PERFORMANCE DATA

The Performance Data section includes charts with standard performance data based on flight test results and engineering analysis.

SECTION 5 - OPTIONAL EQUIPMENT SUPPLEMENT

The Optional Equipment Supplement section contains all the information necessary to operate optional equipment. Each supplement is arranged in 4 sections:

- Section 1 – Limitations
- Section 2 – Normal procedures
- Section 3 – Emergency and malfunction Procedures
- Section 4 – Performance Data

SECTION 6 - WEIGHT AND BALANCE

The Weight and Balance section contains the charts that permit to determine the aircraft weight and the position of the center of gravity.

SECTION 7 - SYSTEM DESCRIPTION

The System Description section provides a general description of the AW139 helicopter and its systems.

SECTION 8 - HANDLING, SERVICING AND MAINTENANCE

The Handling, Servicing and Maintenance section includes the information to:

- Handle the helicopter on the ground, which consists of towing, parking, securing and mooring
- Service and lubricate the helicopter systems and components

SECTION 9 - SUPPLEMENTAL PERFORMANCE INFORMATION

The Supplemental Performance Information section contains data to be used in conjunction with Section 4 and optional equipment Supplements, as applicable. These data are grouped in sections such as Cruise Charts, Climb Gradient Charts, Hover Ceiling with Headwind Benefit Charts.

 **AW139 - RFM - 4D**
Document N°
139G0290X002

AW139



ROTORCRAFT FLIGHT MANUAL

Copy assigned to rotorcraft:
S/N
Registration Marks

ISSUE :
Rev. :

*AW139 and AB139 are two names of the same product.
They identify two batches of aircraft manufactured in conformity
with a unique Type Certificate Data Sheet.
Where not specifically declared, the content of this document is
applicable to both AW139 and AB139 helicopters.*

Continuing airworthiness criteria for the AW139 is developed and maintained
by Agusta, who is the holder of the type certificate in the state of design.

E.A.S.A. Approval Date:
22 August 2006.

AGUSTA PUB. CODE: 502500032

 **AW139 - RFM - 4D** Table of Contents
Document N°
139G0290X002

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Record of Revisions	A-1
Record of Effective Pages	B-1
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Normal Procedures	2-1
Emergency and Malfunction Procedures	3-1
Performance Data	4-1
Optional Equipment Supplements	5-1

E.A.S.A. Approved **UNMAINTAINED COPY FOR INFORMATION ONLY** TOC-1

Table of Contents **AW139 - RFM - 4D** 
Document N°
139G0290X002

PART II - MANUFACTURER'S DATA

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TOC-2 **UNMAINTAINED COPY FOR INFORMATION ONLY** E.A.S.A. Approved

ICN-39-A-004000-G-A0126-01643-A-01-1

RFM - ROTORCRAFT FLIGHT MANUAL

QUICK REFERENCE HANDBOOK (QRH)

The QRH consists of 4 sections which have been grouped into two parts.

The first part combines Limitations, Normal Procedures and Performance Data. The second part contains Emergency/Malfunction Procedures.

The two parts are mounted back-to-back to allow quick access to either.

The various sections/systems are colour tabbed for ease and quickness of locating the page required.

A Index of Content is included at the start of each of the two parts.

The QRH does not replace the RFM, however, all information contained in the QRH is based on the RFM. To operate the aircraft safely and efficiently, the RFM must be read and thoroughly understood.

If any conflict should exist between this QRH and the Approved RFM the RFM shall take precedence.

AW139		AW139-QRH		AW139-QRH	
L I M I T S	GENERAL, TYPE OF OPER, MIN CREW, WEIGHT, CG LIMITATIONS	GEN WT/CG	E M E R G	LIST OF WARNING MESSAGES	WARNING MSGs
	SPEED, ALTITUDE, TEMP LIMITATIONS	SPD ALT TEMP		ELECTRICAL	ELEC
	H-V, CAT A/B LIMITATIONS	H-V CAT A/B		ENGINE & DRIVE SHAFT FAILURE EMERGENCY SHUT DOWN	ENG FAIL SHT DWN
	ENGINE, FUEL, LUBRICANTS, HYDRAULICS LIMITATIONS	ENG FUEL LUB HYD		FIRE & SMOKE	FIRE
	MISCELLANEOUS LIMITATIONS	MISC		LANDING GEAR STATIC PORT OBSTRUCTION	LDG GR STC PRT
N O R M A L F U N C T I O N	GENERAL, FLIGHT PLANNING, EXTERNAL CHECKS	EXTN CHECKS	M A L F U N C T I O N	ROTOR & TRANSMISSION	ROTOR XMSN
	PRE-START CHECKS	PRE START		LIST OF CAUTION MESSAGES	CAUTION MSGs
	ABORTED ENGINE START DRY MOTORING PROCEDURE	ABORT DRY MOT		AUTOMATIC FLIGHT CONTROL SYSTEM	AFCS
	ENGINE START PROCEDURE	ENG START		AVIONIC SYSTEMS	AVIONIC
	SYSTEM CHECKS	SYS CHECKS		ELECTRICAL	ELEC
	TAXIING, PRE-TAKE OFF, TAKE-OFF CAT A/B	TAXI T-O CAT A/B		ENGINE	ENG
	IN FLIGHT PROCEDURES	IN FLIGHT		ENGINE IN FLIGHT RESTART	ENG FLT RESTART
	APPROACH, LANDING CAT A/B	APPR LAND		FUEL SYSTEM	FUEL
	POST LANDING & SHUTDOWN	POST LD SHT DN		HYDRAULIC SYSTEM LANDING GEAR	HYD LDG GR
	FLIGHT DIRECTOR AND FLIGHT MANAGEMENT SYSTEM OPERATION	FD/FMS OPER		MISCELLANEOUS SYSTEMS	MISC
P E R F	ADVISORY CAPTIONS, PDF MESSAGES	CAPTS MSGS		PFD/MFD MESSAGES	PFD/MFD MSGs
	DENSITY ALTITUDE, POWER ASSUR FLYAWAY HEIGHT LOSS	Hd PAV FLYAWAY		ROTOR & TRANSMISSION	ROTOR XMSN
	HOVER CEILING, ROC, FUEL CONSUMPTION	HVR ROC FL CONS		CAT A/B AND IN FLIGHT PROCEDURES FOR ENGINE FAILURE	CAT A/B PROCS
		TOC, REC of REVS			NOTES

ICN-39-A-004000-G-A0126-01644-A-01-1

QRH - QUICK REFERENCE HANDBOOK

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SECTION 41

MAINTENANCE PUBLICATION

GENERAL

The maintenance manual is divided in data modules which provide the required information to perform maintenance on the helicopter.

The data modules can be descriptive or procedural.

The data modules are identified by the following code:

DATA MODULE CODE (DMC)						
	1	2	3	4	5	6
DMC	39	A	XX-XX-XX	YXA	XXXA	A
Eg: 39-A-29-11-01-00A-720A-A						
	39	A	29-11-01	00	720A	A

1 - Model identification code

The model identification code for the AW139 is 39.

2 - System difference code

The system difference code is a letter (letters I and O are not used). This Letter identifies two or more sub-system that can be installed as alternative items because they do the same function (eg: VHF systems by different suppliers).

3 - Standard Numbering System (SNS) code

The SNS code includes three pairs of digits which show:

- The system (eg: 29, hydraulic power).
- The sub-system and sub-subsystem (eg: 11, Number 1 main-hydraulic system).

NOTE

When the sub-subsystem code is zero, the two digits show all of the sub-system.

- The component (eg: 01, Number 1 power control module).

4 - Disassembly code and disassembly code variant

Disassembly code

The disassembly code is a two-digit code or three-digit code if variant.

The disassembly code shows the breakdown of a component, as follow:

- 00 – Data module for all of the helicopter, system, sub-system or component.
- 01 – Data module for the first assembly that you remove from the component.
- 02 – Data module for the second assembly that you remove from the component.

Code 03 and the subsequent codes refer to the third, fourth, etc assembly that you remove from the component.

The disassembly code also identifies the data modules in sequence.

Disassembly code variant

The disassembly code variant is a letter (letter I and O are not used) which identifies alternative items.

These items are different, but the difference is too small to cause a change in the system difference code.

5 - Information code and information code variant

Information code

The information code is a three-digit code.

The information code identifies the types of information you can find in the data module.

000 is used for the systems, for which the SNS identifies the type of information in the data module (eg: 05-10 is "time limits", you must write 000).

The primary codes used in the publication set for the helicopter are written below:

Code	Definition
• 040.....	Description of how it is made and its function
• 050.....	Diagrams and lists
• 060.....	Aerospace ground equipment, tools and software
• 070.....	Consumables, material and expendables
• 080.....	Mixtures and solutions
• 090.....	Software documentation
• 200.....	Servicing
• 500.....	Disconnect, remove and disassemble procedures
• 510.....	Disconnect procedures
• 520.....	Remove procedures
• 530.....	Disassemble procedures
• 550.....	Unload software procedures
• 600.....	Repairs and locally make procedures and data
• 610.....	Add materials
• 620.....	Attach materials
• 630.....	Change the mechanical strength/structure of materials
• 640.....	Change the surface finish of materials
• 650.....	Remove materials
• 660.....	Structure repair procedures and data
• 670.....	Locally make procedures and data
• 700.....	Assemble, install and connect procedures
• 710.....	Assemble procedures
• 720.....	Install procedures
• 800.....	Storage procedures and data

- 810..... Preservation procedures
- 820..... Procedures to remove preservation material
- 830..... Procedures to put items in containers
- 840..... Procedures to remove items from containers
- 850..... Procedures to keep items serviceable when in storage
- 860..... Procedures to move items when in storage

Information code variant

The information code variant is a letter (letters I and O are not used).

The information code variant is used for different data modules that are applicable to the same component and type of operation.

6 - Item location code

The item location code is a letter which shows where you must do the maintenance task.

In this publication, you can find these item location codes:

- A on the helicopter.
- B on the removed assembly/component.
- D applicable to all the locations.

The letter K is used as the item location code for the identification of the data modules applicable to:

- Optional installations.
- Optional systems.
- Optional equipment.

References

Below this heading you find a list of the data modules and technical publications which are included as references in the data module.

Preliminary requirement

Below this heading you find all the data you must know before you do the procedure.

The preliminary requirements are written below these headings:

- Required conditions

- Support equipment
- Supplies
- Spares
- Safety conditions.

Required conditions

Below this heading you find a list of the tasks to be performed before starting the procedure.

Support equipment

Below this heading you find a list of the special tools and support equipment that are necessary to do the procedure.

The identification number is the same number as used in the Illustrated Tool and Equipment publication.

Supplies

Below this heading you find a list of all of the consumables, materials and expendables necessary to do the procedure.

Spares

Below this heading you find a list of the spares that are necessary to do the procedure.

Safety conditions

Below this heading you find the general warnings, cautions and notes that are applicable to the data module.

Procedure

Below this heading you find the sequence of the steps and illustrations which give the instructions necessary to do the procedure.

Requirements after job completion

Below this heading you find all the instructions necessary to put the helicopter back to operation.

AW139

39-A-AMP-00-P

Storage system – General

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1 References	1
--------------------	---

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1 Storage system - General	2
----------------------------------	---

References

Table 1 References

Data Module	Title
39-A-28-11-00-00A-041A-A	Fuel tank installation – Description of how it is made
39-A-28-12-00-00A-041A-A	Fuel tank vent line installation – Description of how it is made
39-A-28-13-00-00A-041A-A	Foam installation – Description of how it is made

Description

1

Storage system

The storage system contains the fuel necessary for the operation of the two engines.

The storage system includes:

- The fuel tank installation (39-A-28-11-00-00A-041A-A)
- The fuel tank vent line installation (39-A-28-12-00-00A-041A-A)
- The foam installation (39-A-28-13-00-00A-041A-A)

Refer to Fig 1.

Effectivity: All

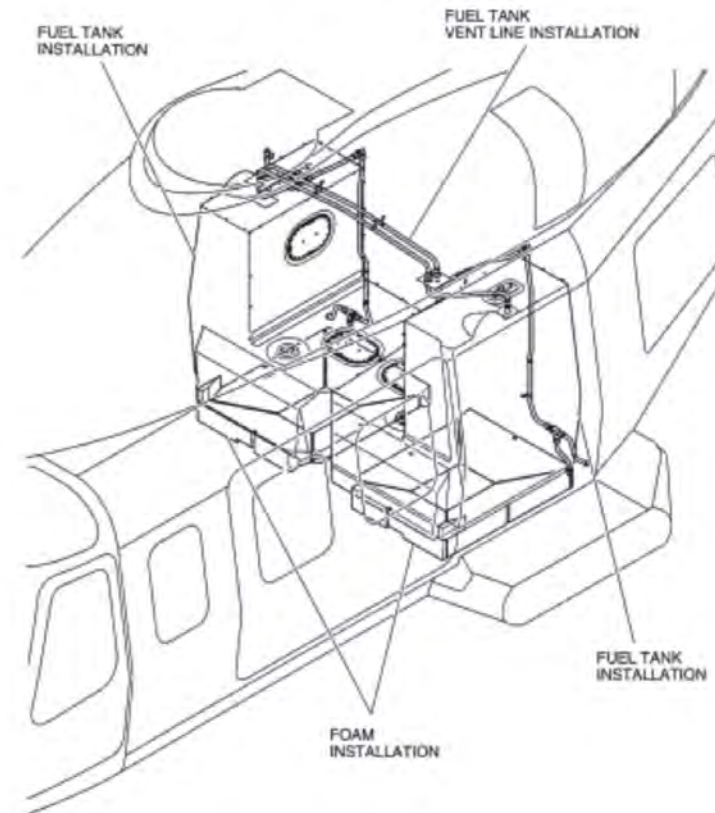
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Figure 1 - Storage system - General

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End of data module

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Number 1 power control module – Install procedures

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References

Table 1 References

Data Module	Title
39-A-00-20-00-00A-120A-A	Helicopter safety – Make the helicopter safe for maintenance
39-A-06-41-00-00A-010A-A	Access doors and panels – General data
39-A-12-11-08-00A-216A-A	Number 1 power control module – Fill with fluid
39-A-20-00-00-00A-711A-A	Threaded fasteners – Tighten procedures
39-A-20-40-00-00A-010A-A	Standard practices - Hydraulic system – General data
39-A-29-10-00-00A-231A-A	Main hydraulic system – Bleed
39-A-29-10-00-00A-321A-A	Main hydraulic system – Operational check
39-A-29-11-01-00A-721A-B	Number 1 power control module – Build-up to usable configuration (Dressing)

Preliminary requirements

Required conditions

Table 2 Required conditions

Condition	Data Module/Technical Publication
The helicopter must be safe for maintenance	39-A-00-20-00-00A-120A-A
The access door 473AL must be opened	39-A-06-41-00-00A-010A-A

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Support equipment

Table 3 Support equipment

Nomenclature	Identification No.	Qty
1. Platform, left	GG-01-00	1

Supplies

Table 4 Supplies

Nomenclature	Identification No.	Qty
No supplies are required		

Spares

Table 5 Spares

Nomenclature	Identification No.	Qty
1. Number 1 power-control module	29-11-00-03-001	AR

Safety conditions

None

Procedure

- Use the standard torque you find in Chapter 20 (39-A-20-00-00-00A-711A-A), when the procedure does not show the torque value.
- Before you do this procedure, refer to hydraulic-system standard practices. Make sure you use these standard practices during this procedure. Refer to 39-A-20-40-00-00A-010A-A.
- During this procedure, you must remove the caps/plugs from:
 - The line ends
 - The component ports
 - The electrical connectors.
- Do this immediately before you connect each line or each electrical connector.
- If you install a replacement Number 1 Power-Control Module (PCM1), do the dressing procedure. Refer to 39-A-29-11-01-00A-721A-B.
- Put the Platform (Support Equipment Ref. 1) adjacent to the left side of the fuselage.
- Put the PCM1 (15, Fig 1) in position on the structure.
- Install the four washers (60) and the four bolts (61) that attach the PCM1 (15) to the structure.
- Tighten the four bolts (61).
- Connect the hydraulic lines that follow to the PCM1 (15).

Effectivity: All

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PROCEDURAL DATA MODULE (SHEET 1 OF 4)



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- The pressure tube (42)
 - The pressure tube (44)
 - The pressure tube (43)
 - The return tube (45)
 - The suction tube (48)
 - The return hose (47)
 - The pressure hose (46)
 - The pressure hose (51)
 - The case drain hose (50)
 - The suction hose (49).
- 10 Put the half clamp (55) and the clamps (54) and (57) in position on the half clamp (56).
- 11 Install the washer (53) and the bolt (52) that attach the clamp (54) and the half clamps (55) and (56) to the structure.
- 12 Install the washer (58) and the bolt (59) that attach the clamp (57) and the half clamps (55) and (56) to the structure.
- 13 Tighten the bolt (52).
- 14 Tighten the bolt (59).
- 15 Connect the hydraulic lines that follow to the PCM1 (15):
- The drain tube (37)
 - The pressure tube (36)
 - The return tube (35).
- 16 Put the half clamp (40) in position on the half clamp (41).
- 17 Install the washer (39) and the bolt (38) that attach the half clamps (40) and (41) to the structure.
- 18 Tighten the bolt (38).
- 19 Connect the drain hose (34) to the drain valve (33).
- 20 Connect the electrical connectors that follow to the components of the PCM1 (A45) (15):
- The connector A4SP5 (17) to the HP filter connector (18)
 - The connector A4SP6 (16) to the LP filter connector (20)
 - The connector A4SP13 (19) to the shutoff valve (21)
 - The connector A4SP12 (23) to the level switch (22)
 - The connector A4SP7 (1) to the pressure switch (14)
 - The connector A4SP1 (2) to the pressure transducer (13)
 - The connector A4SP3 (3) to the pressure switch (12)
 - The connector A4SP2 (4) to the temperature sensor (11)
 - The connector A4SP4 (5) to the temperature switch (9)
 - The connector A4SP11 (6) to the pressure switch (8)
 - The connector A4SP14 (7) to the shutoff valve (10).
- 21 Put and hold these parts in position on the PCM1 (15):
- The plates (27), (25) and (26).
 - The clamps (28) and (32).
- 22 Install these parts that attach the plates (27), (25) and (26) and the clamps (28) and (32) to the PCM1 (15):
- The washer (31).
 - The bolt (30).

Effectivity: All

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- 23 Tighten the bolt (30).

Requirements after job completion

- 1 Remove all the tools and the other items from the work area. Make sure that the work area is clean.
- 2 Fill with fluid the Number 1 power-control module. Refer to 39-A-12-11-08-00A-218A-A.
- 3 Bleed the main hydraulic system. Refer to 39-A-29-10-00-00A-231A-A.
- 4 Do the operational check of main hydraulic system. Refer to 39-A-29-10-00-00A-321A-A.

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PROCEDURAL DATA MODULE (SHEET 2 OF 4)

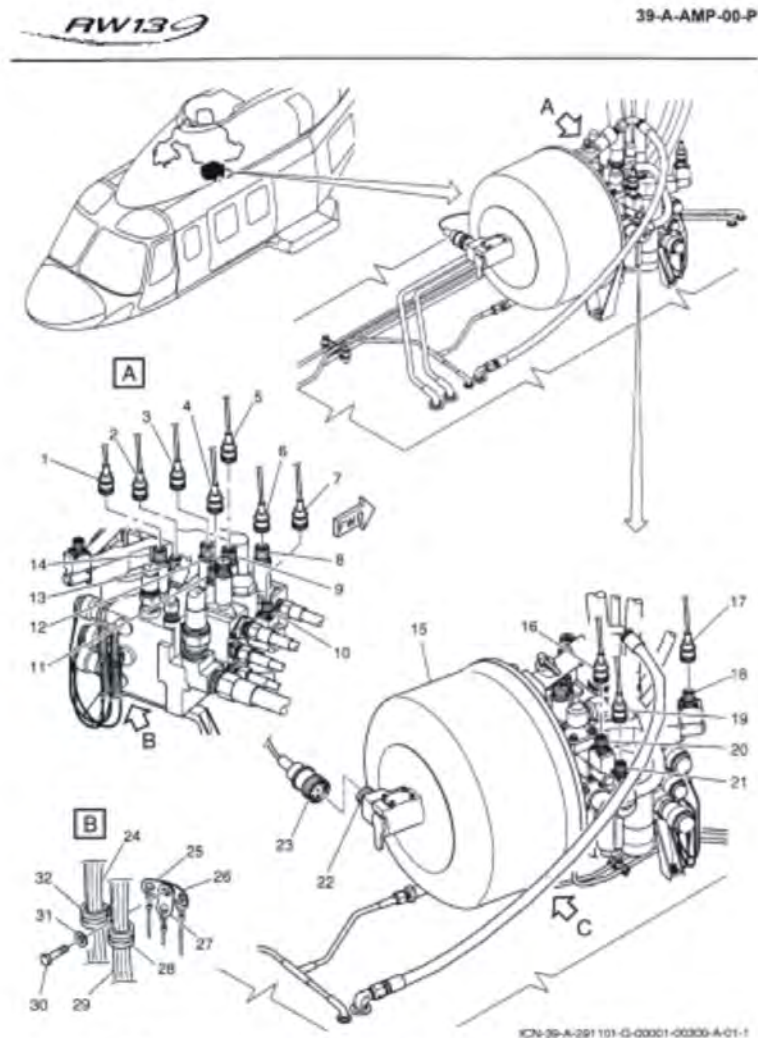


Figure 1 - Number 1 power control module - install procedures (Sheet 1 of 3)

Effectivity: All

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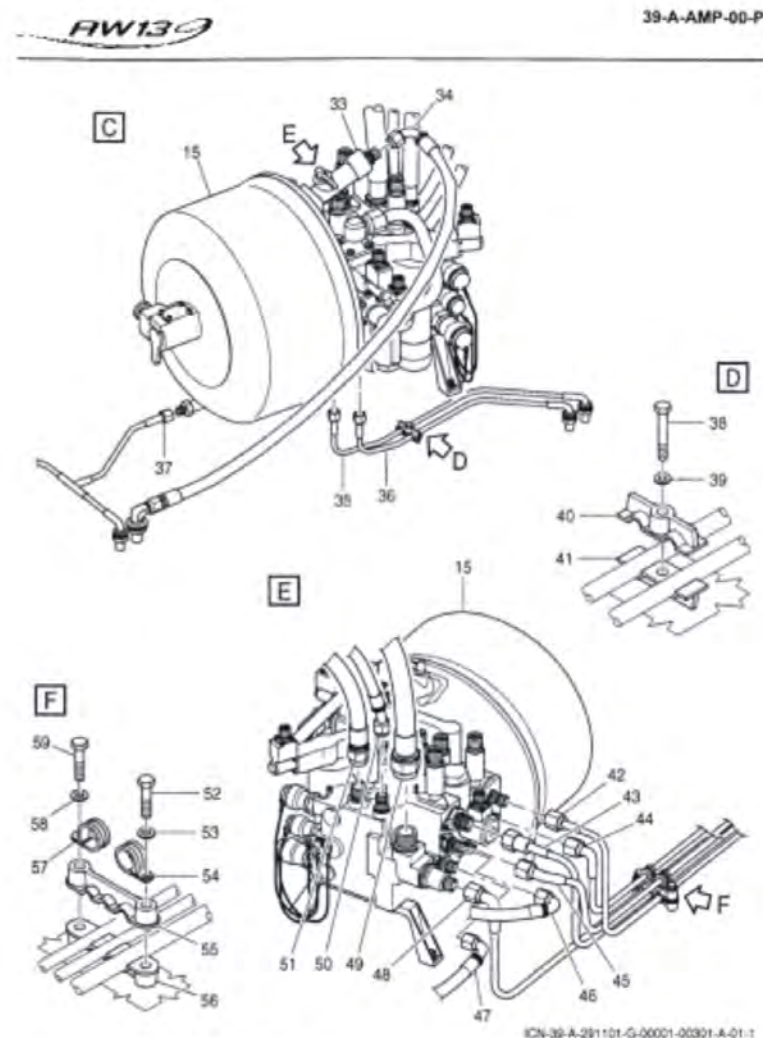


Figure 1 - Number 1 power control module - install procedures (Sheet 2 of 3)

Effectivity: All

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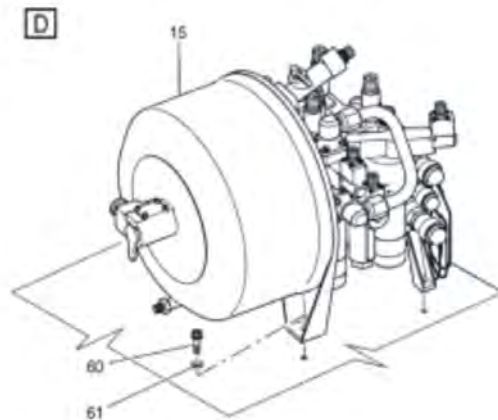
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Figure 1 - Number 1 power control module - install procedures (Sheet 3 of 3)

Effectivity: All

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End of data module

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First issue 2005-04-30

The First Issue of this chapter includes the modules that follow:

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39-A-08-00-00-00A-001H-A	2	C 2005-05-15	All
39-A-08-00-00-00A-002H-A	2	C 2005-05-15	All
39-A-08-00-00-00A-003H-A	2	N 2005-04-30	All
39-A-08-00-00-00A-006H-A	2	N 2005-04-30	All
39-A-08-00-00-00A-018A-A	2	N 2005-04-30	All
39-A-08-00-00-00A-021A-A	2	C 2005-05-15	All
39-A-08-10-00-00A-000A-A	4	C 2005-05-15	All
39-A-08-20-00-00A-000A-A	2	N 2005-04-30	All
39-A-08-30-00-00A-000A-A	2	N 2005-04-30	All

C = Changed module
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R = Revised module

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FOR TRAINING PURPOSE ONLY

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Technical Name	Information Name	Document Identifier	Effectivity
Hydraulic power	General	39-A-29-00-00-00A-000A-A	All
Main	General	39-A-29-10-00-00A-000A-A	All
Main hydraulic system	Bleed	39-A-29-10-00-00A-231A-A	All
Main hydraulic system	Purge	39-A-29-10-00-00A-255A-A	All
Main hydraulic system	Operational check	39-A-29-10-00-00A-321A-A	All
Main hydraulic system - Circuit interlock	Operational check	39-A-29-10-00-00A-321B-A	All
Hydraulic control panel	Remove procedures	39-A-29-10-01-00A-520A-A	All
Hydraulic control panel	Install procedures	39-A-29-10-01-00A-720A-A	All
Number 1 main hydraulic system	Description of how it is made	39-A-29-11-00-00A-041A-A	All
Number 1 main hydraulic system	Description of function	39-A-29-11-00-00A-042A-A	All
Number 1 main hydraulic system - Components and lines	General visual inspection	39-A-29-11-00-00A-285A-A	All
Number 1 power control module	Operational check	39-A-29-11-01-00A-321A-A	All
Number 1 power control module - Level switches	Operational check	39-A-29-11-01-00A-321B-A	All
Number 1 power control module	Remove procedures	39-A-29-11-01-00A-520A-A	All
Number 1 power control module	Return to basic configuration (Undressing)	39-A-29-11-01-00A-521A-B	All
Number 1 power control module	Install procedures	39-A-29-11-01-00A-720A-A	All
Number 1 power control module	Build-up to usable configuration (Dressing)	39-A-29-11-01-00A-721A-B	All
Pressure transducer (J1) (Number 1 power control module)	Replacement (remove and install a new item)	39-A-29-11-01-01A-921A-A	All
Pressure filter (Number 1 power control module)	Replacement (remove and install a new item)	39-A-29-11-01-02A-921A-A	All
Return filter (Number 1 power control module)	Replacement (remove and install a new item)	39-A-29-11-01-03A-921A-A	All
Pressure switch (J3) (Number 1 power control module)	Replacement (remove and install a new item)	39-A-29-11-01-04A-921A-A	All
Pressure switch (J7) (Number 1 power control module)	Replacement (remove and install a new item)	39-A-29-11-01-05A-921A-A	All
Pressure switch (J11) (Number 1 power control module)	Replacement (remove and install a new item)	39-A-29-11-01-06A-921A-A	All
Pressure switch (J9) (Number 1 power control module)	Replacement (remove and install a new item)	39-A-29-11-01-07A-921A-A	All

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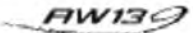
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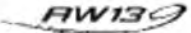


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Record of temporary revisions					
TR No	Issue date	Insertion date	by (signature)	Removal date	by (signature)
001	2004-07-31				
002					
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- Keep this page in the publication immediately after the cover page
 - All the data modules included in a Temporary Revision (TR) can be found in the List of Effective Data Modules (LOEDM) page of the related TR

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CHANGE RECORD PAGE - RECORD OF TEMPORARY REVISION PAGE

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Maintenance publication

Temporary revision 001
to publication dated 2004-03-31

Issue: 2004-07-31

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List of effective data modules

TR001 includes the data modules that follow:

Document identifier	Pages	Date	Effectivity
39-A-21-90-22-00A-286A-K	6	C 2004-07-31	All
39-A-25-62-01-00A-286A-K	4	N 2004-07-31	All

- The changed (C) data modules included in this TR, replace the data modules with the same codes of the basic publication.
- Put the new (N) data modules, included in this TR, in the applicable chapter / section of the basic publication.

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